



LG

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PLASMA TV

SERVICE MANUAL

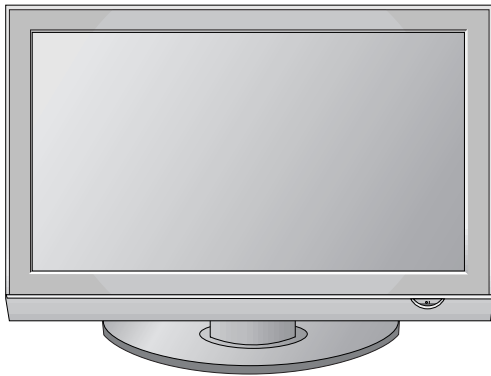
CHASSIS : PU84C

MODEL : 50PG30

50PG30F-UA

CAUTION

BEFORE SERVICING THE CHASSIS,
READ THE SAFETY PRECAUTIONS IN THIS MANUAL.



SAFETY PRECAUTIONS

IMPORTANT SAFETY NOTICE

Many electrical and mechanical parts in this chassis have special safety-related characteristics. These parts are identified by \triangle in the Schematic Diagram and Replacement Parts List.

It is essential that these special safety parts should be replaced with the same components as recommended in this manual to prevent X-RADIATION, Shock, Fire, or other Hazards.

Do not modify the original design without permission of manufacturer.

General Guidance

An Isolation Transformer should always be used during the servicing of a receiver whose chassis is not isolated from the AC power line. Use a transformer of adequate power rating as this protects the technician from accidents resulting in personal injury from electrical shocks.

It will also protect the receiver and its components from being damaged by accidental shorts of the circuitry that may be inadvertently introduced during the service operation.

If any fuse (or Fusible Resistor) in this monitor is blown, replace it with the same specified type.

When replacing a high wattage resistor (Oxide Metal Film Resistor, over 1W), keep the resistor 10mm away from PCB.

Keep wires away from high voltage or high temperature parts.

Leakage Current Cold Check(Antenna Cold Check)

With the instrument AC plug removed from AC source, connect an electrical jumper across the two AC plug prongs. Place the AC switch in the on position, connect one lead of ohm-meter to the AC plug prongs tied together and touch other ohm-meter lead in turn to each exposed metallic parts such as antenna terminals, phone jacks, etc.

If the exposed metallic part has a return path to the chassis, the measured resistance should be between $1M\Omega$ and $5.2M\Omega$.

When the exposed metal has no return path to the chassis the reading must be infinite.

An other abnormality exists that must be corrected before the receiver is returned to the customer.

Leakage Current Hot Check (See below Figure)

Plug the AC cord directly into the AC outlet.

Do not use a line Isolation Transformer during this check.

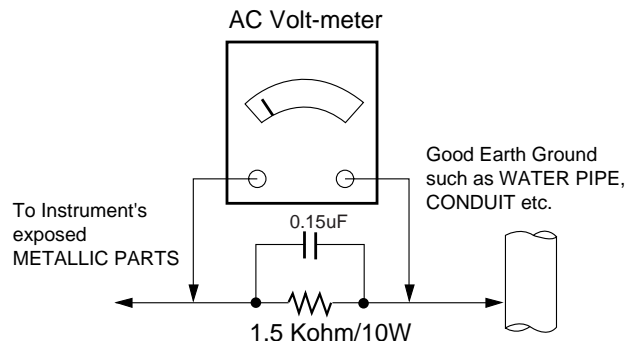
Connect 1.5K/10watt resistor in parallel with a 0.15uF capacitor between a known good earth ground (Water Pipe, Conduit, etc.) and the exposed metallic parts.

Measure the AC voltage across the resistor using AC voltmeter with 1000 ohms/volt or more sensitivity.

Reverse plug the AC cord into the AC outlet and repeat AC voltage measurements for each exposed metallic part. Any voltage measured must not exceed 0.75 volt RMS which corresponds to 0.5mA.

In case any measurement is out of the limits specified, there is possibility of shock hazard and the set must be checked and repaired before it is returned to the customer.

Leakage Current Hot Check circuit



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SPECIFICATIONS

| MODELS | | 50PG10 (50PG10-UA) NS-50PDP-09 (50PG1DD-UA) | 50PG20 (50PG20-UA) 50PG20C (50PG20C-UA) |
|--|---|--|---|
| Dimensions (Width x Height x Depth) | With stand | 48.2 x 33.4 x 14.3 inches 1224.7 x 849.0 x 364.0 mm | 48.2 x 33.4 x 14.3 inches 1224.7 x 849.0 x 364.0 mm |
| | Without stand | 48.2 x 31.1 x 3.2 inches 1224.7 x 790.0 x 83.6 mm | 48.2 x 31.1 x 3.3 inches 1224.7 x 790.0 x 86.0 mm |
| Weight | With stand | 91.4 pounds / 41.5 kg | 90.8 pounds / 41.2 kg |
| | Without stand | 83.9 pounds / 38.1 kg | 83.3 pounds / 37.8 kg |
| MODELS | | 50PG30 (50PG30F-UA) | 60PG30 (60PG30F-UA) |
| Dimensions (Width x Height x Depth) | With stand | 48.5 x 33.4 x 14.3 inches 1232.0 x 850.0 x 363.6 mm | 57.7 x 39.7 x 16.2 inches 1468.0 x 1009.1 x 413.9 mm |
| | Without stand | 48.5 x 31.2 x 3.3 inches 1232.0 x 793.0 x 84.0 mm | 57.7 x 37.3 x 3.4 inches 1468.0 x 949.5 x 88.5 mm |
| Weight | With stand | 93.2 pounds / 42.3 kg | 177.6 pounds / 80.6 kg |
| | Without stand | 84.4 pounds / 38.3 kg | 160.0 pounds / 72.6 kg |
| Power requirement Television System Program Coverage External Antenna Impedance | | AC100-240V ~ 50/60Hz NTSC-M, ATSC, 64 & 256 QAM VHF 2-13, UHF 14-69, CATV 1-135, DTV 2-69, CADTV 1-135 75 ohm | |
| Environment condition | Operating Temperature Operating Humidity | 32 ~ 104°F (0 ~ 40°C) Less than 80% | |
| | Storage Temperature Storage Humidity | -4 ~ 140°F (-20 ~ 60°C) Less than 85% | |

ⁿ The specifications shown above may be changed without prior notice for quality improvement.

ADJUSTMENT INSTRUCTIONS

1. Application Range

This spec. sheet is applied to all of the PU84A, PU84C chassis.

2. Specification

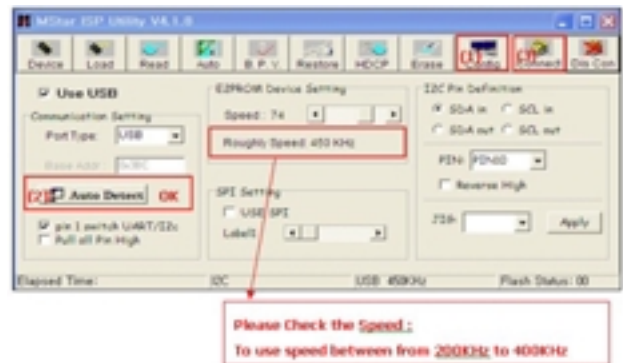
- (1) Because this is not a hot chassis, it is not necessary to use an isolation transformer. However, the use of isolation transformer will help protect test instrument.
 - (2) Adjustment must be done in the correct order.
 - (3) The adjustment must be performed in the circumstance of $25 \pm 5^\circ\text{C}$ of temperature and $65 \pm 10\%$ of relative humidity if there is no specific designation.
 - (4) The input voltage of the receiver must keep 100~240V, 50/60Hz.
Caution : 42 inch must keep 100 ~ 120V, 50/60Hz.
 - (5) The receiver must be operated for about 5 minutes prior to the adjustment.
- After RGB Full White in HEAT-RUN Mode, the receiver must be operated prior to the adjustment.
 - Enter into HEAT-RUN MODE
 - (1) Press the POWER ON KEY on R/C for adjustment.
 - (2) Press the ADJ KEY on R/C and enter EZ ADJUST
Select "4. White Pattern" by using D/E (CH +/-) and select "White" by using F /G(VOL +/-)
 - Set is activated HEAT run without signal generator in this mode.
 - Single color pattern (RED / BLUE / GREEN) of HEAT RUN MODE uses to check panel.

Caution: If you turn on a still screen more than 20 minutes (Especially digital pattern, cross hatch pattern), an after image may be occur in the black level part of the screen.

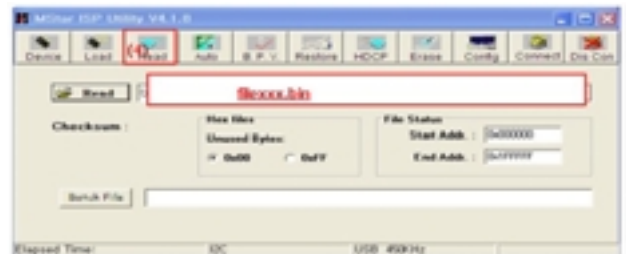
Caution: Set up "RF mode(noise)" after PCB assembly adjustment.

3. Download

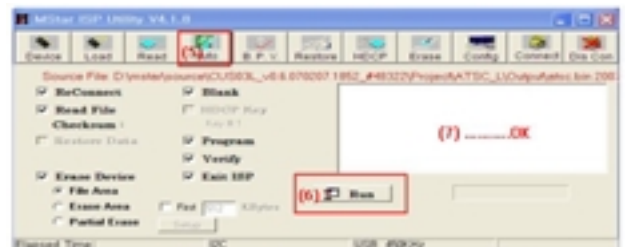
- (1) Execute ISP program "Mstar ISP Utility" and then click "Config" tab.
- (2) Set as below, and then click "Auto Detect" and check "OK" message. If display "Error", Check connect computer, jig, and set.
- (3) Click "Connect" tab. If display "Can't", Check connect computer, jig, and set.



- (4) Click "Read" tab, and then load download file(XXXX.bin) by clicking "Read"



- (5) Click "Auto" tab and set as below
- (6) Click "Run".
- (7) After downloading, check "OK" message.



ADJUSTMENT INSTRUCTIONS

4. ADC Process

4-1. PC Input ADC

(1) Auto RGB Gain/Offset Adjustment

- 1) Convert to PC in Input-source
I2C COMMAND: 0xF4 (SELECT_INPUT) 0x00 0x60 (RGB)
cf. 0x10(TV), 0x20(AV), 0x40(COMPONENT), 0x60(RGB), 0x90(HDMI)
- 2) Signal equipment displays
Output Voltage : 700 mVp-p
Impress Resolution XGA (1024 x 768 @ 60Hz)
Model : 60 in Pattern Generator
Pattern : 29 in Pattern Generator (MSPG-925 SERISE)

[gray pattern that left & right is black and center is white signal (Refer below picture)].

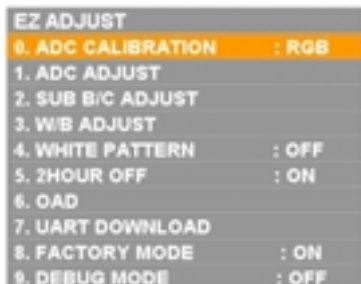


- 3) Adjust by commanding AUTO_COLOR_ADJUST(0xF1) 0x00 0x02 instruction.

(2) Confirmation

- 1) We confirm whether "0xB6(RGB)" address of EEPROM "0xA2" is "0xAA" or not.
- 2) If "0xB6(RGB)" address of EEPROM "0xB2" isn't "0xAA", we adjust once more
- 3) We can confirm the ADC values from "0xB0~0xB5(RGB)" addresses in a page "0xA2"

[Manual ADC process using Service Remocon. After enter Service Mode by pushing "ADJ" key, execute "ADC Adjust" by pushing "G" key at "0. ADC CALIBRATION ".



4-2. COMPONENT Input ADC

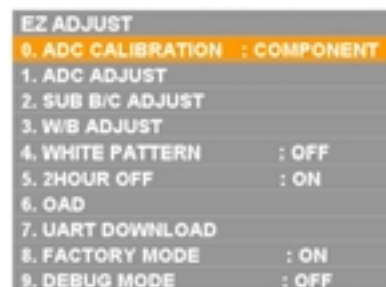
(1) Component Gain/Offset Adjustment

- 1) Convert to Component in Input-source
I2C COMMAND : 0xF4 (SELECT_INPUT) 0x00 0x40 (COMPONENT)
cf. 0x10(TV), 0x20(AV), 0x40(COMPONENT), 0x60(RGB), 0x90(HDMI)
- 2) Signal equipment displays
Impress Resolution 480i
MODEL : 209 in Pattern Generator(480i Mode)
PATTERN : 8 in Pattern Generator(MSPG-925 SERISE)
- 3) Adjust by commanding AUTO_COLOR_ADJUST(0xF1) 0x00 0x02 instruction
- 4) Signal equipment displays
Impress Resolution 1080i
MODEL : 223 in Pattern Generator(1080i Mode)
PATTERN : 8 in Pattern Generator(MSPG-925 SERISE)



- 5) Adjust by commanding AUTO_COLOR_ADJUST(0xF1) 0x00 0x02 instruction

[Manual ADC process using Service Remocon. After enter Service Mode by pushing "ADJ" key, execute "ADC Adjust" by pushing "G" key at "0. ADC CALIBRATION".

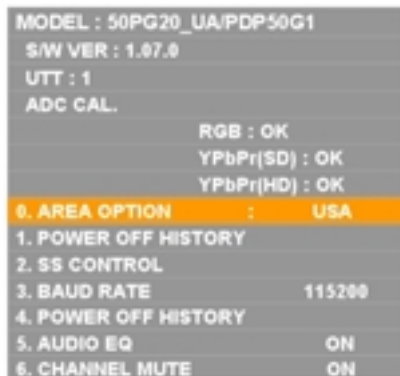


ADJUSTMENT INSTRUCTIONS

4-3. Confirmation

- (1) We confirm whether "0xBF(480i)/0xC8(1080i)" address of EEPROM "0xA2" is "0xAA" or not.
- (2) If "0xBF(480i)/0xC8(1080i)" address of EEPROM "0xA2" isn't "0xAA", we adjust once more
- (3) We can confirm the ADC values from "0xB9 ~ 0xBE(480i) / 0xC2 ~ (1080i)" addresses in a page "0xA2"

[Manual ADC Confirmation using Service Remocon. After enter Service Mode by pushing "INSTART" key.



Caution: Each PCB assembly must be checked by check JIG set.
(Because power PCB Assembly damages to PDP Module, especially be careful)

Caution: Set up "RF mode(noise)" before voltage adjustment.

5. POWER PCB Ass'y Voltage Adjustment (Va, Vs voltage Adjustment)

5-1. Test Equipment: D.M.M 1EA

5-2. Connection Diagram for Measuring

Refer to Fig.1, Fig 2, Fig 3

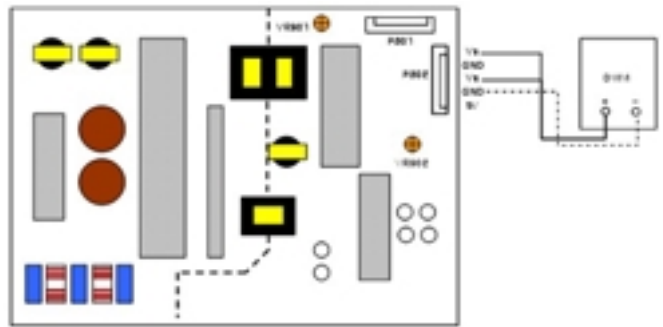
5-3. Adjustment Method

(1) 50" Va Adjustment (refer fig.1)

- 1) After receiving 100% Full White Pattern, HEAT RUN.
- 2) Connect + terminal of D.M.M. to Va pin of P802, connect-terminal to GND pin of P802.
- 3) After turning VR902, voltage of D.M.M adjustment as same as Va voltage which on label of panel right/top (deviation; $\pm 0.5V$)

(2) 50" Vs Adjustment (refer fig.1)

- 1) Connect + terminal of D.M.M. to Vs pin of P802, connect -terminal to GND pin of P802.
- 2) After turning VR901, voltage of D.M.M adjustment as same as Vs voltage which on label of panel right/top (deviation ; $\pm 0.5V$)



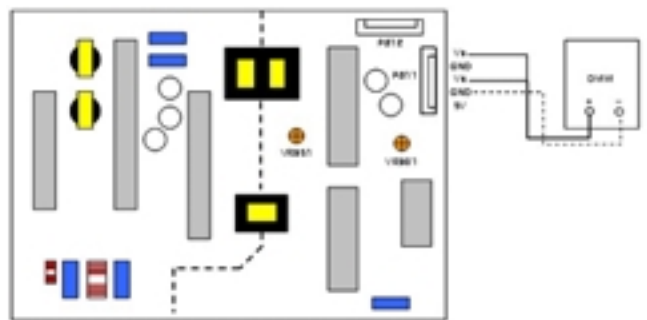
(Fig. 1) 50inch Power PCB Assy Voltage Adjustment

(3) 42" Va Adjustment (refer fig.2)

- 1) After receiving 100% Full White Pattern, HEAT RUN.
- 2) Connect + terminal of D.M.M. to Va pin of P811, connect -terminal to GND pin of P811.
- 3) After turning VR901, voltage of D.M.M adjustment as same as Va voltage which on label of panel right/top (deviation; $\pm 0.5V$)

(4) 42" Vs Adjustment (refer fig.2)

- 1) Connect + terminal of D. M..M. to Vs pin of P811, connect -terminal to GND pin of P811.
- 2) After turning VR951, voltage of D.M.M adjustment as same as Vs voltage which on label of panel right/top (deviation ; $\pm 0.5V$)



(Fig. 2) 42inch Power PCB Assy Voltage Adjustment

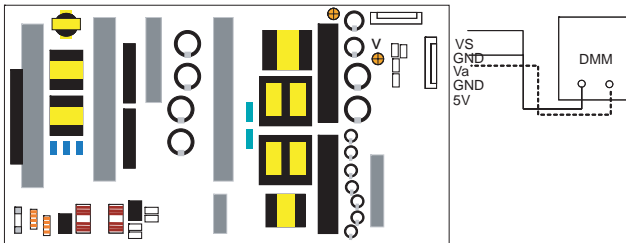
ADJUSTMENT INSTRUCTIONS

(5) 60" Va Adjustment (refer fig.3)

- 1) After receiving 100% Full White Pattern, HEAT RUN.
- 2) Connect + terminal of D.M.M. to Va pin of P11, connect -terminal to GND pin of P11.
- 3) After turning VR901, voltage of D.M.M adjustment as same as Va voltage which on label of panel right/top (deviation; $\pm 0.5V$)

(6) 60" Vs Adjustment (refer fig.3)

- 1) Connect + terminal of D. M..M. to Vs pin of P11, connect -terminal to GND pin of P11.
- 2) After turning VR951, voltage of D.M.M adjustment as same as Vs voltage which on label of panel right/top (deviation ; $\pm 0.5V$)



(Fig. 3) 60inch Power PCB Assy Voltage Adjustment

ADJUSTMENT INSTRUCTIONS

6. DDC EDID Write (MODEL NAME: LG TV)

Caution: Press the POWER ON KEY on R/C before EDID download.

EDID download is processed automatically through RS-232C PC(for communication through RS-232C), UART baud rate: 115200 bps

○ EDID Download Protocol (RS-232C)

| No | Item | CMD 1 | CMD 2 | Data 0 | Remark |
|-------------------|-------------------------|-------|-------|---------|--|
| EDID Download | EDID Download | * | * | 1 0-4,9 | All=0; HDR=1,2,3,4=1,2,3,4; RGB=0 |
| Check EDID Status | Check EDID Status | * | * | 2 0-4,9 | All=0; HDR=1,2,3,4=1,2,3,4; RGB=0 |
| Data Update | Product Date | * | * | 3 1 | Production year/month Data 1: Year, Data 2: Month |
| Mode Control | Download Mode In | * | * | 0 0 | Transmitting adjustment mode In instruction, operate adjustment command. |
| | Download Mode Out | * | * | 9 0 | |
| | Adjustment Confirmation | * | * | 9 9 | EDID data existence check in SET assembly |

○ HDMI-3 EDID DATA



| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 00 | 00 | 03 | 18 | F1 | 47 | 94 | 05 | 03 | 02 | 20 | 22 | 10 | 23 | 15 | 07 | 50 |
| 10 | 87 | 03 | 0C | 00 | 30 | 00 | B8 | 2D | 01 | 1D | 00 | 72 | 51 | 00 | 1E | 20 |
| 20 | 6E | 20 | 55 | 00 | C4 | 8E | 21 | 00 | 00 | 1E | 01 | 1D | 80 | 18 | 71 | 1C |
| 30 | 16 | 20 | 58 | 2C | 25 | 00 | C4 | 8E | 21 | 00 | 00 | 5E | 8C | 0A | 00 | 8A |
| 40 | 20 | E0 | 2D | 10 | 10 | 3E | 96 | 00 | C4 | 8E | 21 | 00 | 00 | 18 | 8C | 0A |
| 50 | C0 | 8A | 20 | 80 | 2D | 10 | 10 | 3E | 96 | 00 | 13 | 8E | 21 | 00 | 00 | 18 |
| 60 | 0E | 1F | 00 | 80 | 51 | 00 | 1E | 30 | 40 | 80 | 37 | 00 | C4 | 8E | 21 | 00 |
| 70 | 00 | 1C | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 8A |

○ RGB EDID DATA



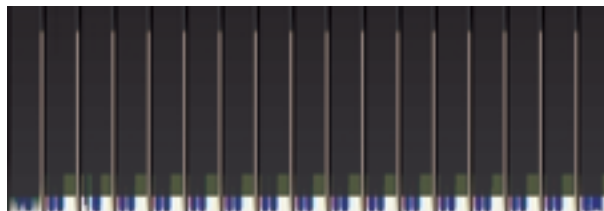
○ HDMI-1 EDID DATA

| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 00 | 00 | FF | FF | FF | FF | FF | FF | 00 | 1E | 80 | 01 | 00 | 01 | 01 | 01 | 01 |
| 10 | 00 | 11 | 01 | 03 | 80 | 73 | 41 | 96 | 0A | CF | 74 | A3 | 57 | 4C | 80 | 23 |
| 20 | 09 | 48 | 4C | AF | CF | 00 | 31 | 40 | 45 | 40 | 61 | 40 | 81 | 80 | A9 | 40 |
| 30 | 01 | 01 | 01 | 01 | 01 | 01 | 88 | 21 | 50 | 80 | 51 | 00 | 1B | 30 | 40 | 70 |
| 40 | 36 | 00 | C4 | 8E | 21 | 00 | 00 | 1E | 02 | 3A | 80 | 1B | 71 | 38 | 2D | 40 |
| 50 | 58 | 2C | 45 | 00 | C4 | 8E | 21 | 00 | 00 | 1E | 00 | 00 | 00 | FD | 00 | 30 |
| 60 | 58 | 1F | 64 | 11 | 00 | 0A | 20 | 20 | 20 | 20 | 20 | 00 | 00 | 00 | FC | |
| 70 | 00 | 4C | 47 | 20 | 54 | 56 | 0A | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 01 | 8A |



○ HDMI-2 EDID DATA

| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 00 | 00 | FF | FF | FF | FF | FF | FF | 00 | 1E | 80 | 01 | 00 | 01 | 01 | 01 | 01 |
| 10 | 00 | 11 | 01 | 03 | 80 | 73 | 41 | 96 | 0A | CF | 74 | A3 | 57 | 4C | 80 | 23 |
| 20 | 09 | 48 | 4C | AF | CF | 00 | 31 | 40 | 45 | 40 | 61 | 40 | 81 | 80 | A9 | 40 |
| 30 | 01 | 01 | 01 | 01 | 01 | 01 | 88 | 21 | 50 | 80 | 51 | 00 | 1B | 30 | 40 | 70 |
| 40 | 36 | 00 | C4 | 8E | 21 | 00 | 00 | 1E | 02 | 3A | 80 | 1B | 71 | 38 | 2D | 40 |
| 50 | 58 | 2C | 45 | 00 | C4 | 8E | 21 | 00 | 00 | 1E | 00 | 00 | 00 | FD | 00 | 30 |
| 60 | 58 | 1F | 64 | 11 | 00 | 0A | 20 | 20 | 20 | 20 | 20 | 00 | 00 | 00 | FC | |
| 70 | 00 | 4C | 47 | 20 | 54 | 56 | 0A | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 01 | 8A |



ADJUSTMENT INSTRUCTIONS

7. Adjustment of White Balance

Caution: Press the POWER ON KEY on R/C before W/B adjustment.

7-1. Test Equipment

- Color Analyzer (CS-1000, CA-100+(CH.10), CA-210(CH.10))

[Please adjust CA-100+ / CA-210 by CS-1000 before measuring
--> You should use Channel 10 which is Matrix compensated
(White, Red, Green, Blue revised) by CS-1000 and adjust
in accordance with White balance adjustment coordinate.

- Color temperature standards according to CSM and Module

| CSM | PLA94% |
|--------|--------|
| Cool | 11000K |
| Medium | 9000K |
| Warm | 6500K |

- Change target luminance and range of the Auto adjustment W/B equipment.

| | |
|------------------|----|
| Target luminance | 85 |
| Range | 20 |

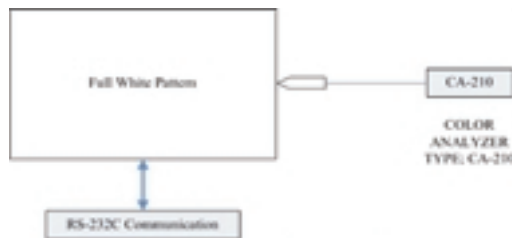
- White balance adjustment coordinate and color temperature

| Cool | CS-1000 | CA-100+ (CH.10) | CA-210 (CH.10) |
|--------|---------|-----------------|----------------|
| x | 0.276 | 0.276±0.002 | 0.276±0.002 |
| y | 0.283 | 0.283±0.002 | 0.283±0.002 |
| Δuv | 0.000 | 0.000 | 0.000 |
| Medium | CS-1000 | CA-100+ (CH.10) | CA-210 (CH.10) |
| x | 0.285 | 0.285±0.002 | 0.285±0.002 |
| y | 0.293 | 0.293±0.002 | 0.293±0.002 |
| Δuv | 0.000 | 0.000 | 0.000 |
| Warm | CS-1000 | CA-100+ (CH.10) | CA-210 (CH.10) |
| x | 0.313 | 0.313±0.002 | 0.313±0.002 |
| y | 0.329 | 0.329±0.002 | 0.329±0.002 |
| Δuv | 0.003 | 0.003 | 0.003 |

※ PC (for communication through RS-232C) → UART Baud rate: 115200 bps

7-2. Connecting Picture of the Measuring Instrument (On Automatic control)

Inside PATTERN is used when W/B is controlled. Connect to auto controller or push control R/C ADJ Key—> Enter the mode of White-Balance, the pattern will come out.



[Fig.5] connecting picture (On Automatic Control)

7-3. Auto-control Interface and Directions

- Adjust in the place where the influx of light like floodlight around is blocked. (illumination is less than 10ux).
- In case of PDP: Measure and adjust after sticking the Color Analyzer (CA-100+, CA210) to the side of the module.

In case of LCD: Adhere closely the Color Analyzer (CA210) to the module less than 10cm distance, keep it with the surface of the Module and Color Analyzer's Probe vertically.(80~100°).

- Aging time

- After aging start, keep the power on (no suspension of power supply) and heat-run over 5 minutes.
- In case of PDP, keep white pattern using inside pattern.
- In case of LCD, using 'no signal' or 'full white pattern' or the others, check the back light on.

- Auto Adjustment Map(RS-232C)

| | RS-232C COMMAND [CMD ID DATA] | | | MIN | CENTER (DEFAULT) | | | MAX |
|--------|----------------------------------|-----|------|-----|---------------------|-----|------|-----|
| | Cool | Mid | Warm | | Cool | Mid | Warm | |
| R Gain | jd | Ja | jd | 00 | 192 | 192 | 192 | 255 |
| G Gain | jh | Jb | je | 00 | 192 | 192 | 192 | 255 |
| B Gain | ji | Jc | jf | 00 | 192 | 192 | 192 | 255 |
| R Cut | | | | | 128 | 128 | 128 | 255 |
| G Cut | | | | | 128 | 128 | 128 | 255 |
| B Cut | | | | | 128 | 128 | 128 | 255 |

7-4. Manual White Balance

- Press the POWER KEY on R/C for adjustment and heat run over 5 minutes.
- Zero Calibrate CA-100+ / CA-210, and when controlling, stick the sensor to the center of PDP module surface.
- Press the ADJ KEY on R/C and enter EZ ASJUST
Select "3. W/B ADJUST" and press ENTER(A).
Set test-pattern on and display inside pattern.

- Control is carried out on three color temperatures, COOL, MEDIUM, WARM.
(Control is carried out three times)

<Temperature: COOL>

- R-offset / G-offset / B-offset is set to 128
- Control R-Gain and G-Gain.
- Each gain is limited to 192

<Temperature: MEDIUM>

- R-offset / G-offset / B-offset is set to 128
- Control R-Gain and G-Gain.
- Each gain is limited to 192

<Temperature: WARM>

- R-offset / G-offset / B-offset is set to 128
- Control G-Gain and B-Gain.
- Each gain is limited to 192

ADJUSTMENT INSTRUCTIONS

8. HDCP(High-Bandwidth Digital Contents Protection) SETTING

- (1) Connect D-sub Signal Cable to D-Sub Jack
- (2) Input HDCP key with HDCP-key- in-program
- (3) HDCP Key value is stored on EEPROM(AT24C512) which is 80~A1 addresses of 0xA0~0xA2 page
- (4) AC off/ on and on HDCP button of MSPG925 and confirm whether picture is displayed or not of using MSPG925
- (5) HDCP Key value is different among the sets.

9. RS-232C

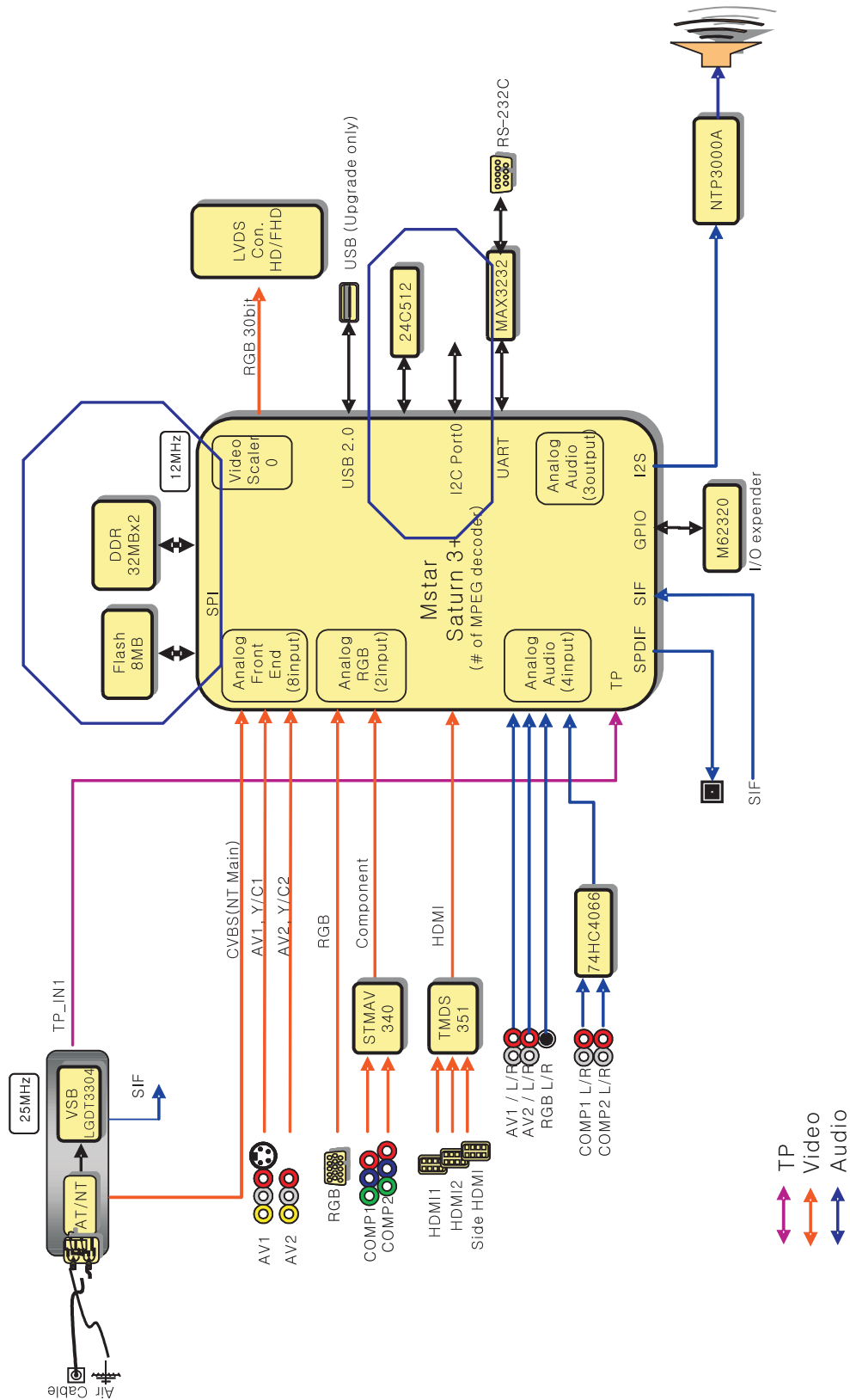
Press In-start key and select 3.Baud Rate menu. Check RS-232C after changing Baud Rate 115200.

10. OPTION

- (1) Press ADJ R/C In-start key and select 0.AREA OPTION
- (2) Select Country by using F /G(VOL +/-) in accordance with destination

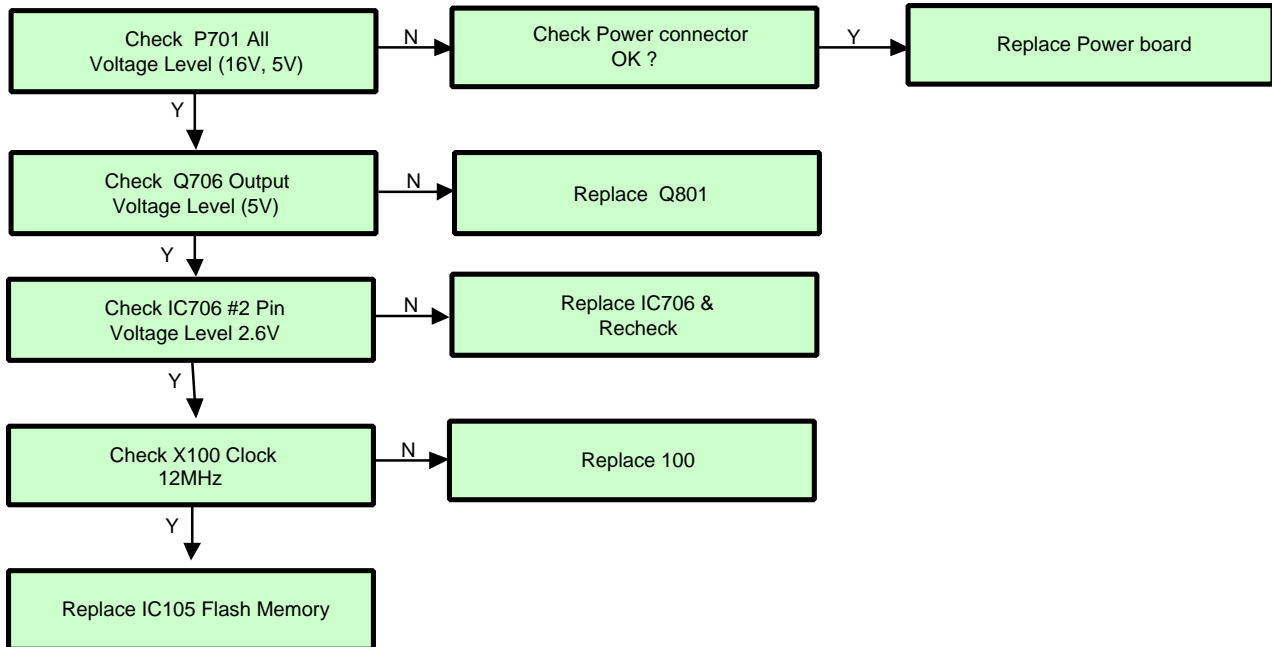
TROUBLE SHOOTING GUIDE

Power – Up Boot Fail Trouble Shooting



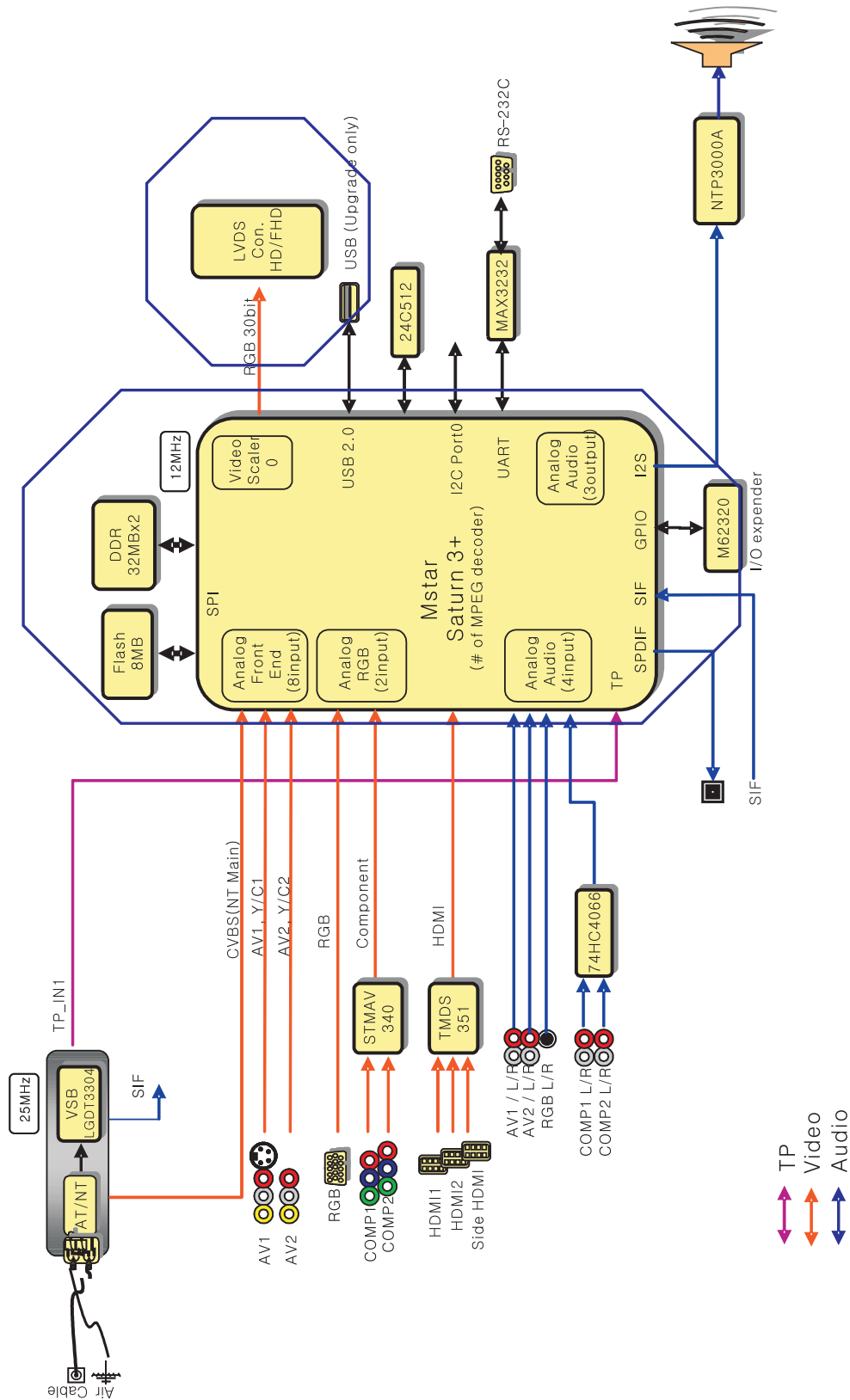
TROUBLE SHOOTING GUIDE

Power-Up Boot Fail Trouble Shooting



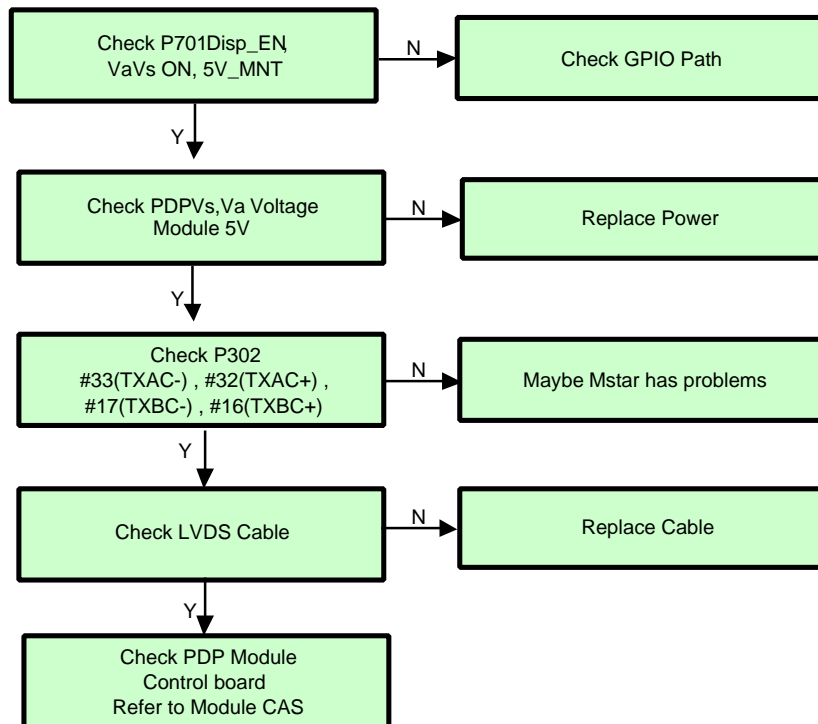
TROUBLE SHOOTING GUIDE

No OSD Trouble Shooting



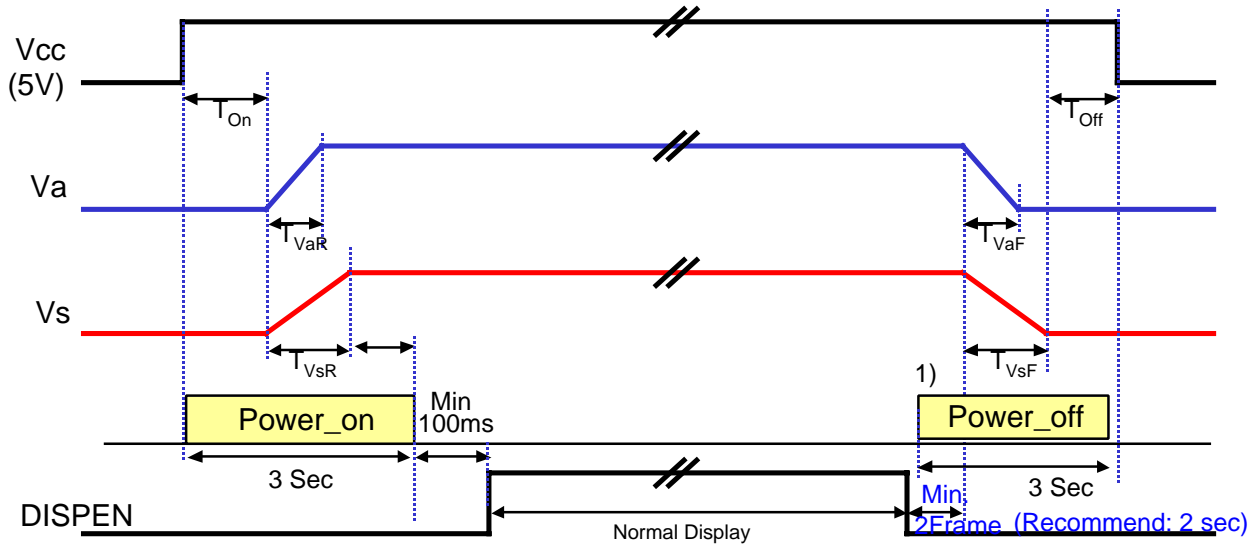
TROUBLE SHOOTING GUIDE

No OSD Trouble Shooting



TROUBLE SHOOTING GUIDE

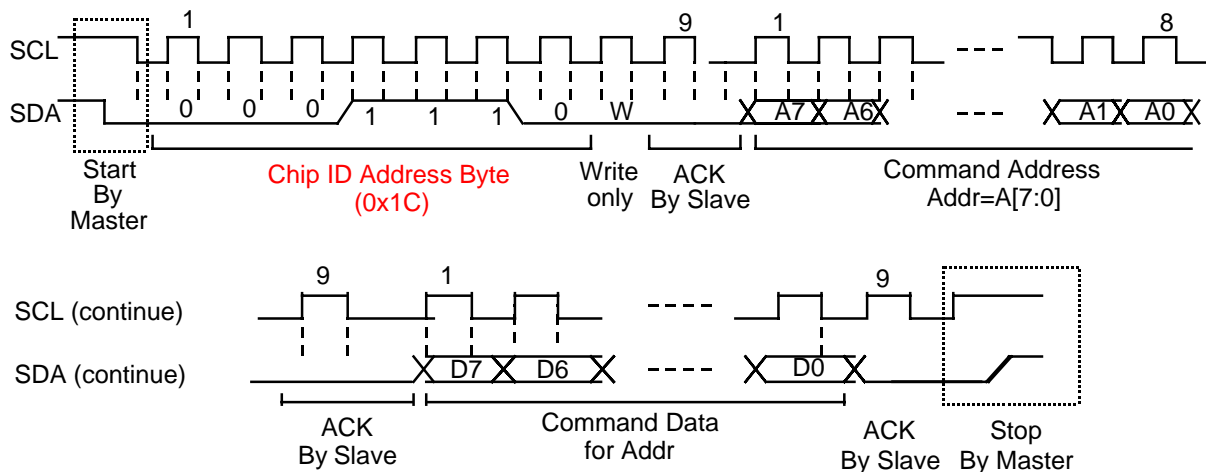
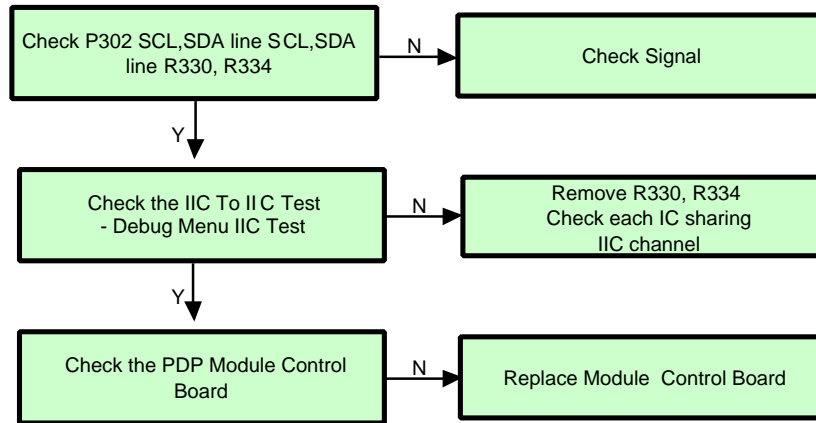
No OSD Trouble Shooting (Module Power Sequence)



| Symbol | Description | Min. | Max. | unit |
|------------------------------------|---|------|------|------|
| T _{On} | Time interval between 90% of Vcc and 10% of Vs when Power On | 500 | - | msec |
| T _{Off} | Time interval between 10% of Vs and 90% of Vcc when Power Off | 20 | - | msec |
| T _{VaR} | Rising Time of Va (10% to 90%) | 10 | 300 | msec |
| T _{VaF} | Falling Time of Va (90% to 10%) | 50 | 300 | msec |
| T _{VsR} | Rising Time of Vs (10% to 90%) | 100 | 800 | msec |
| T _{VsF} | Falling Time of Vs (90% to 10%) | 90 | 500 | msec |
| T _{on} + T _{VsR} | Time interval between 90% of Vcc and 90% of Vs when Power On | 600 | 2000 | msec |

TROUBLE SHOOTING GUIDE

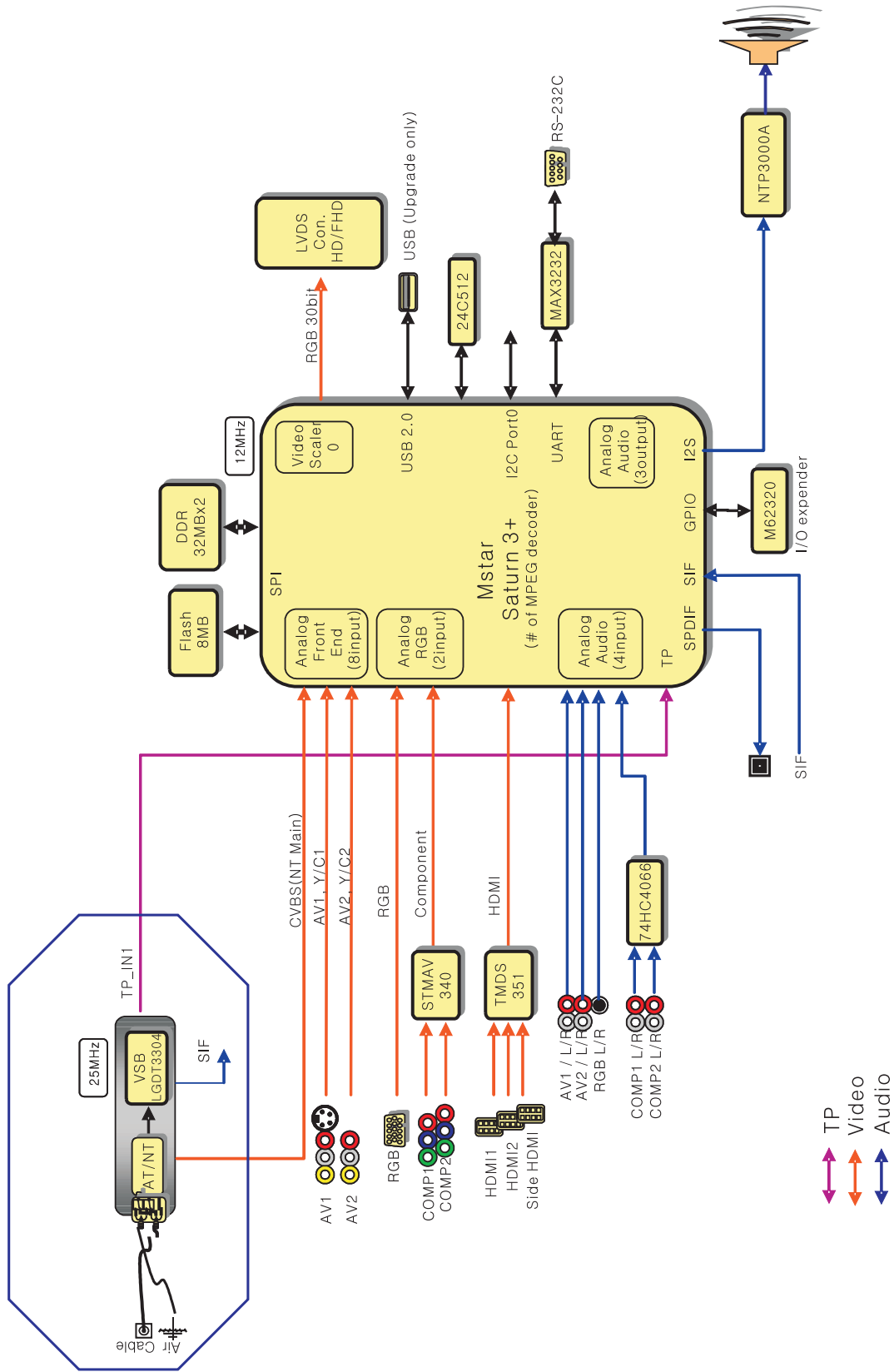
Module Control Trouble Shooting



Master : Image Board
Slave : PDP Module

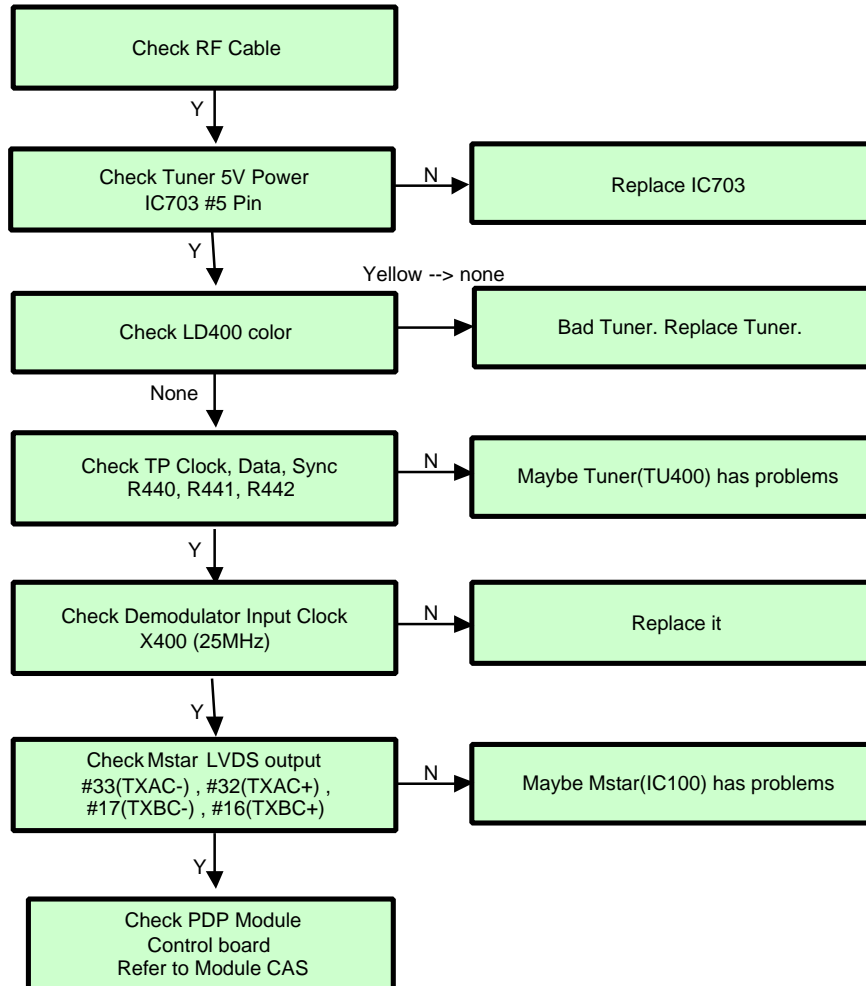
TROUBLE SHOOTING GUIDE

Digital TV Video Trouble Shooting



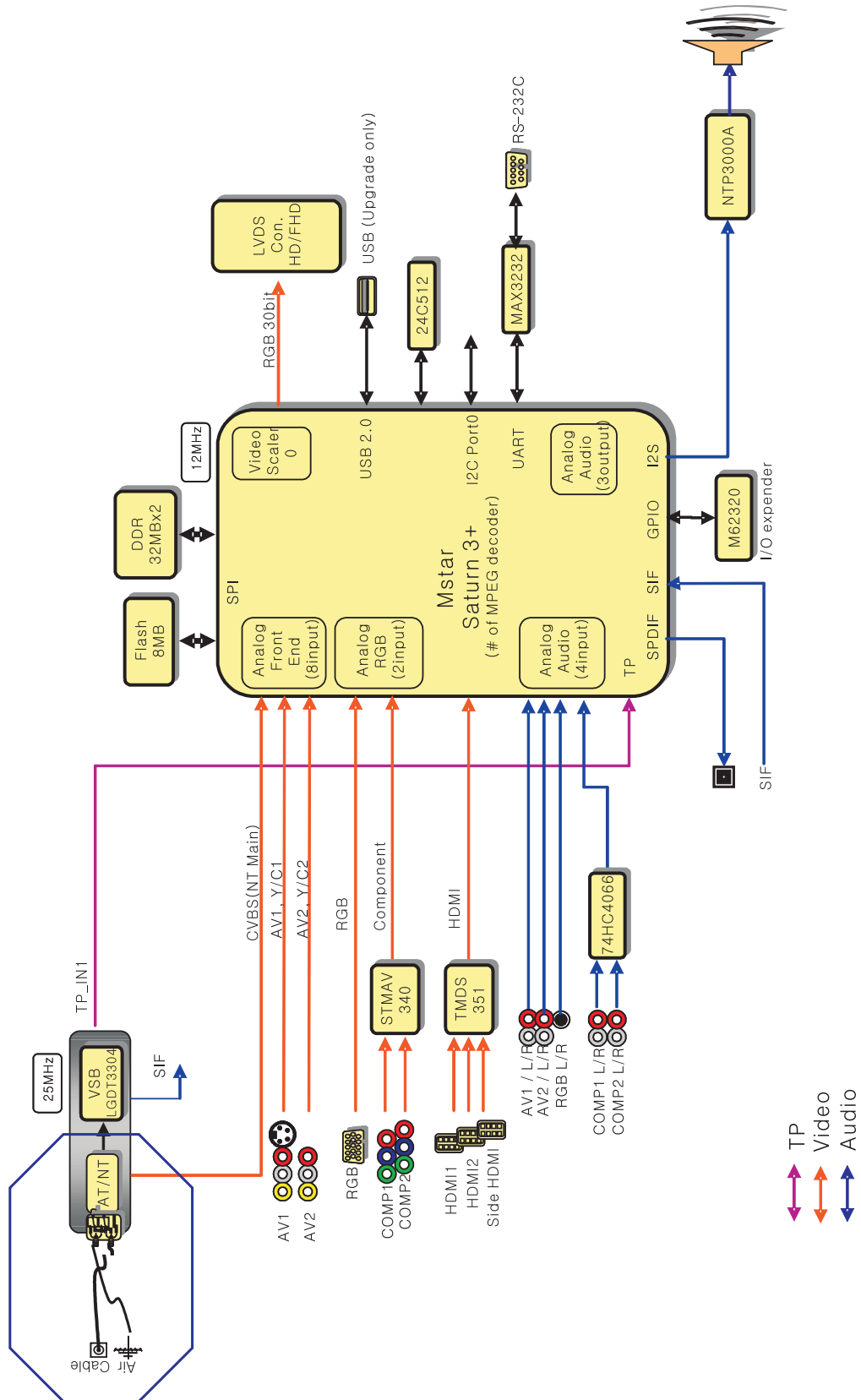
TROUBLE SHOOTING GUIDE

Digital TV Video Trouble Shooting



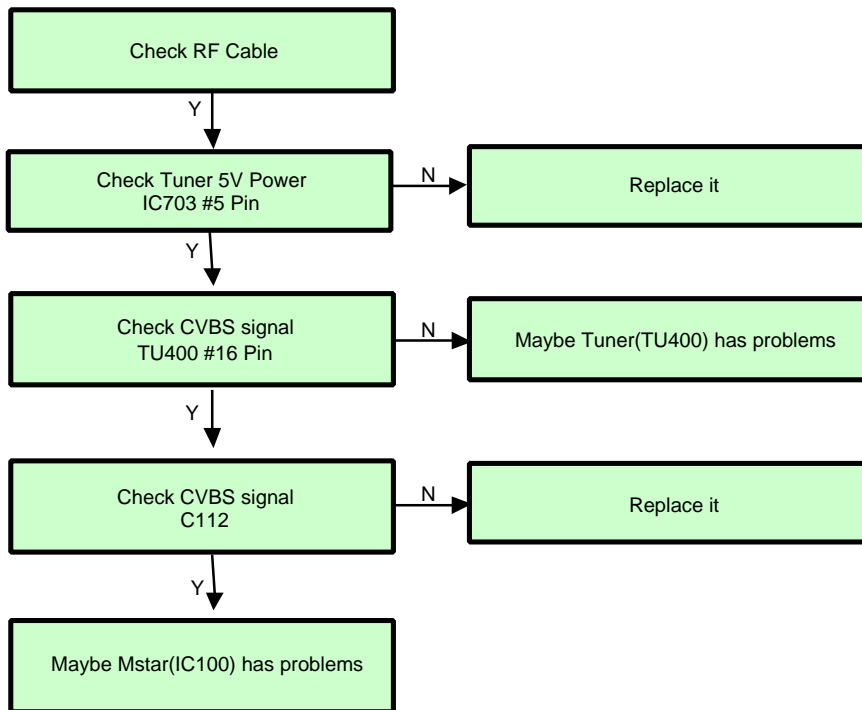
TROUBLE SHOOTING GUIDE

Analog TV Video Trouble Shooting



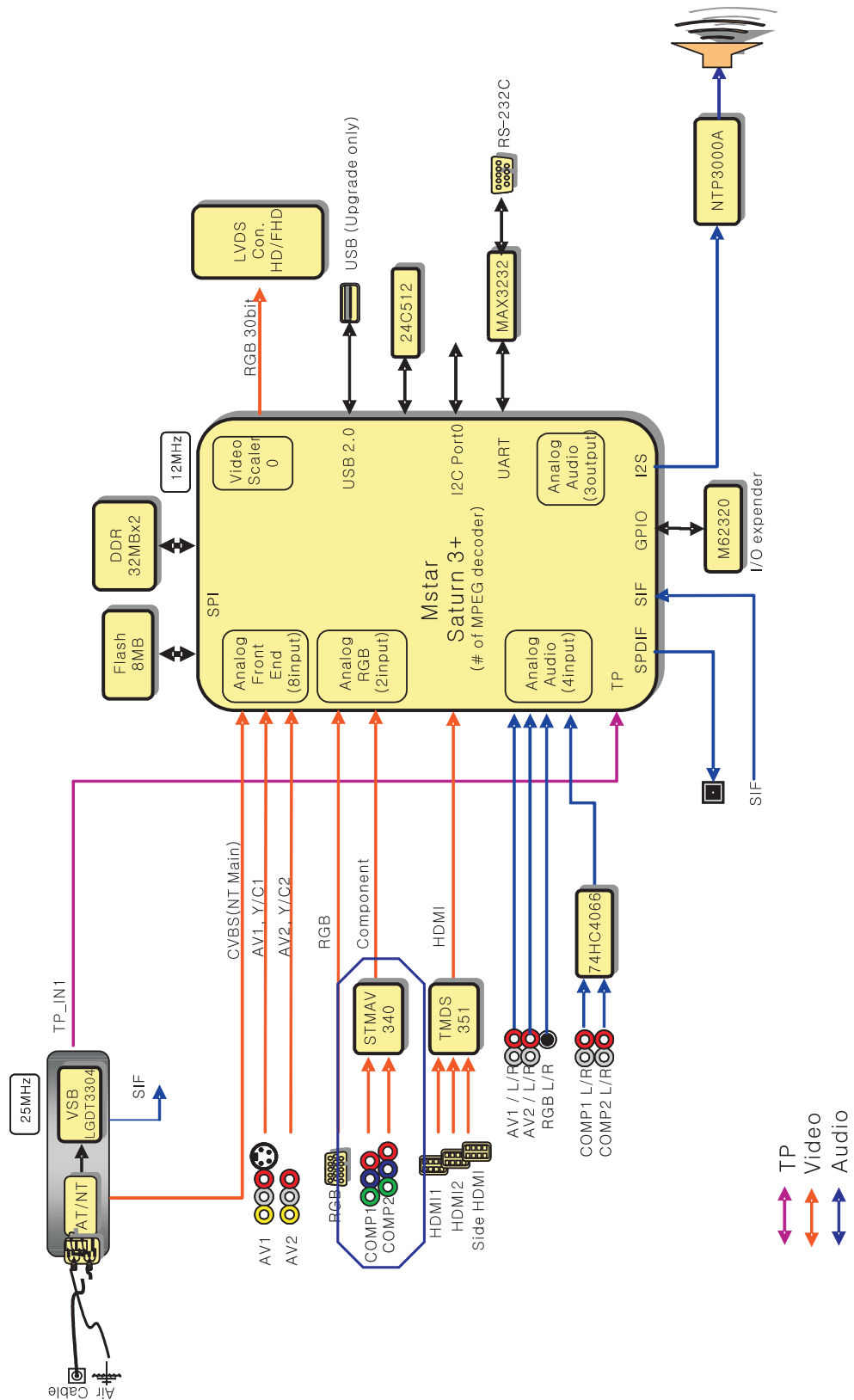
TROUBLE SHOOTING GUIDE

Analog TV Video Trouble Shooting



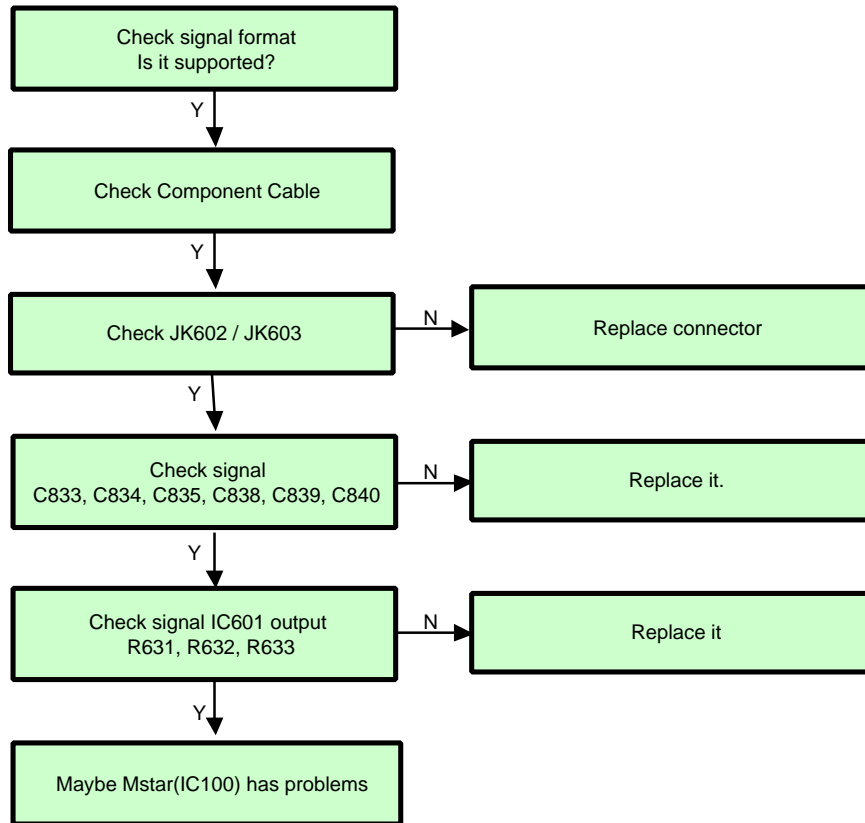
TROUBLE SHOOTING GUIDE

Component Video Trouble Shooting



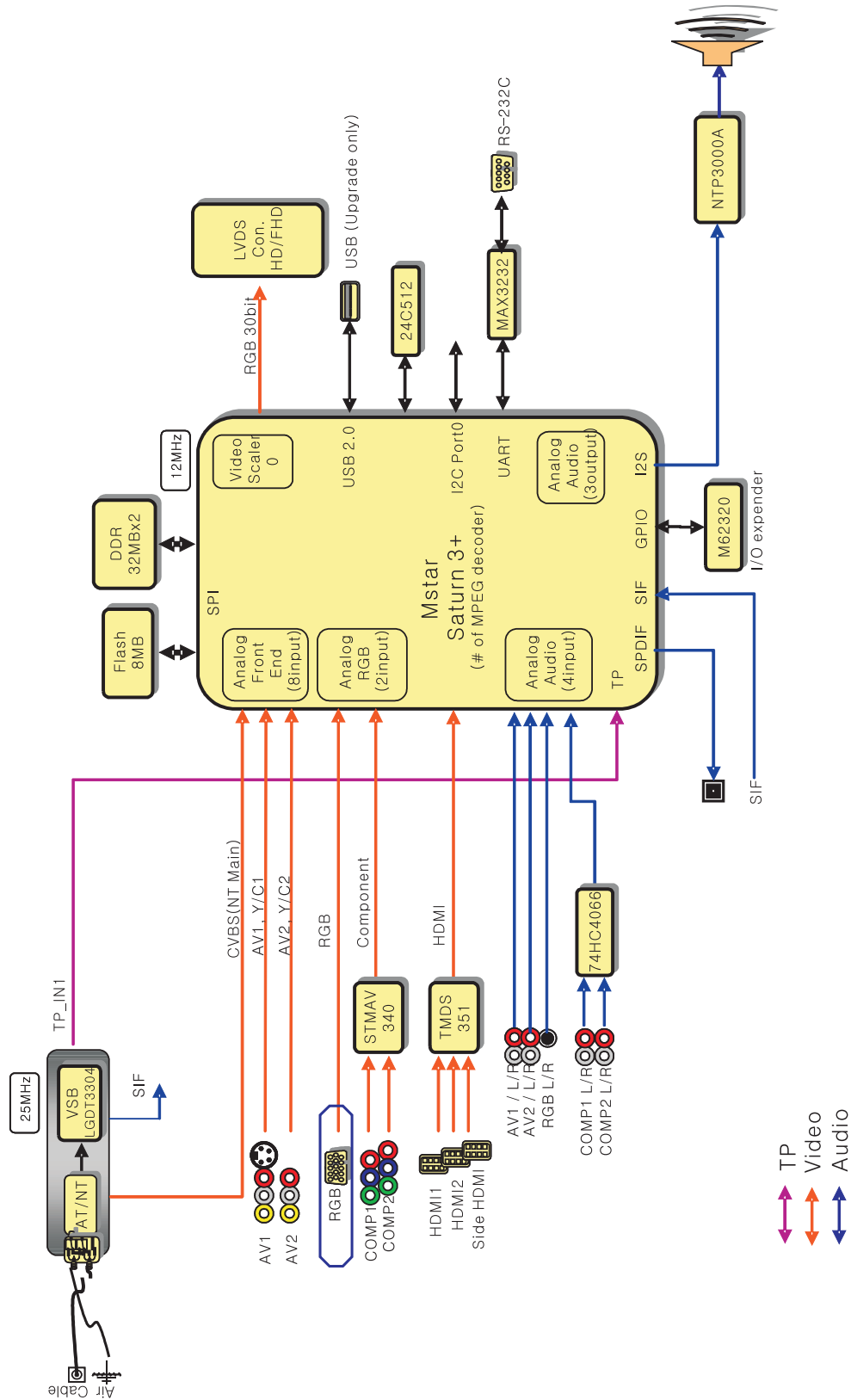
TROUBLE SHOOTING GUIDE

Component Video Trouble Shooting



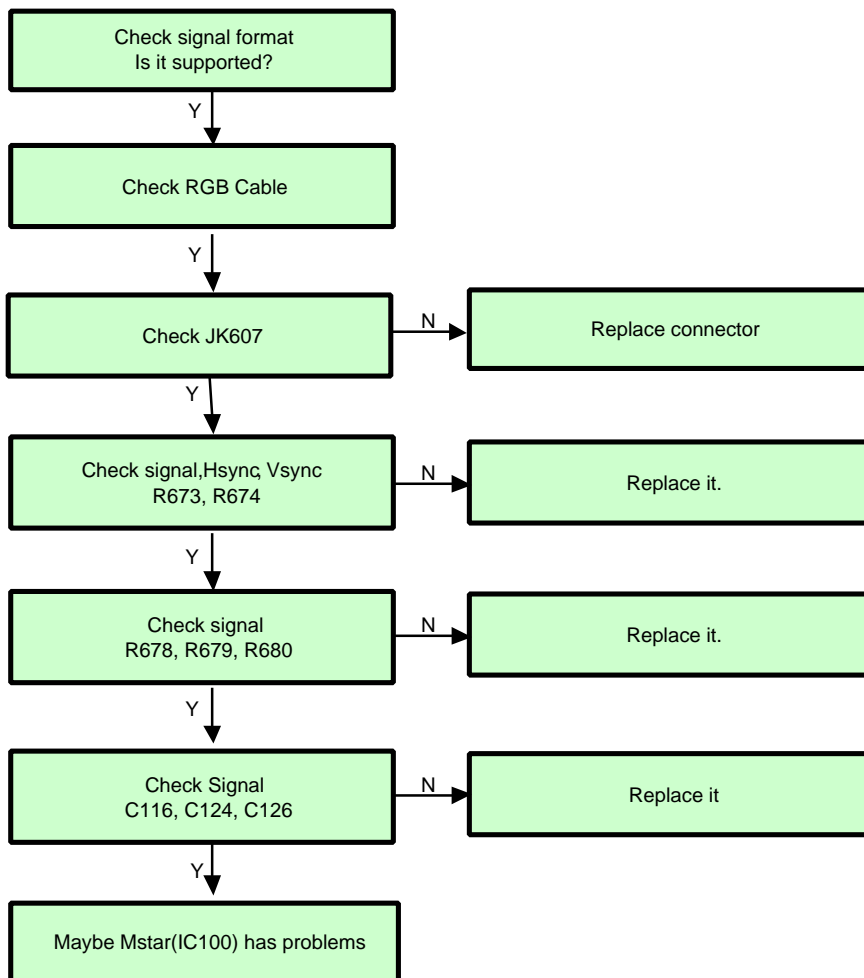
TROUBLE SHOOTING GUIDE

RGB Video Trouble Shooting



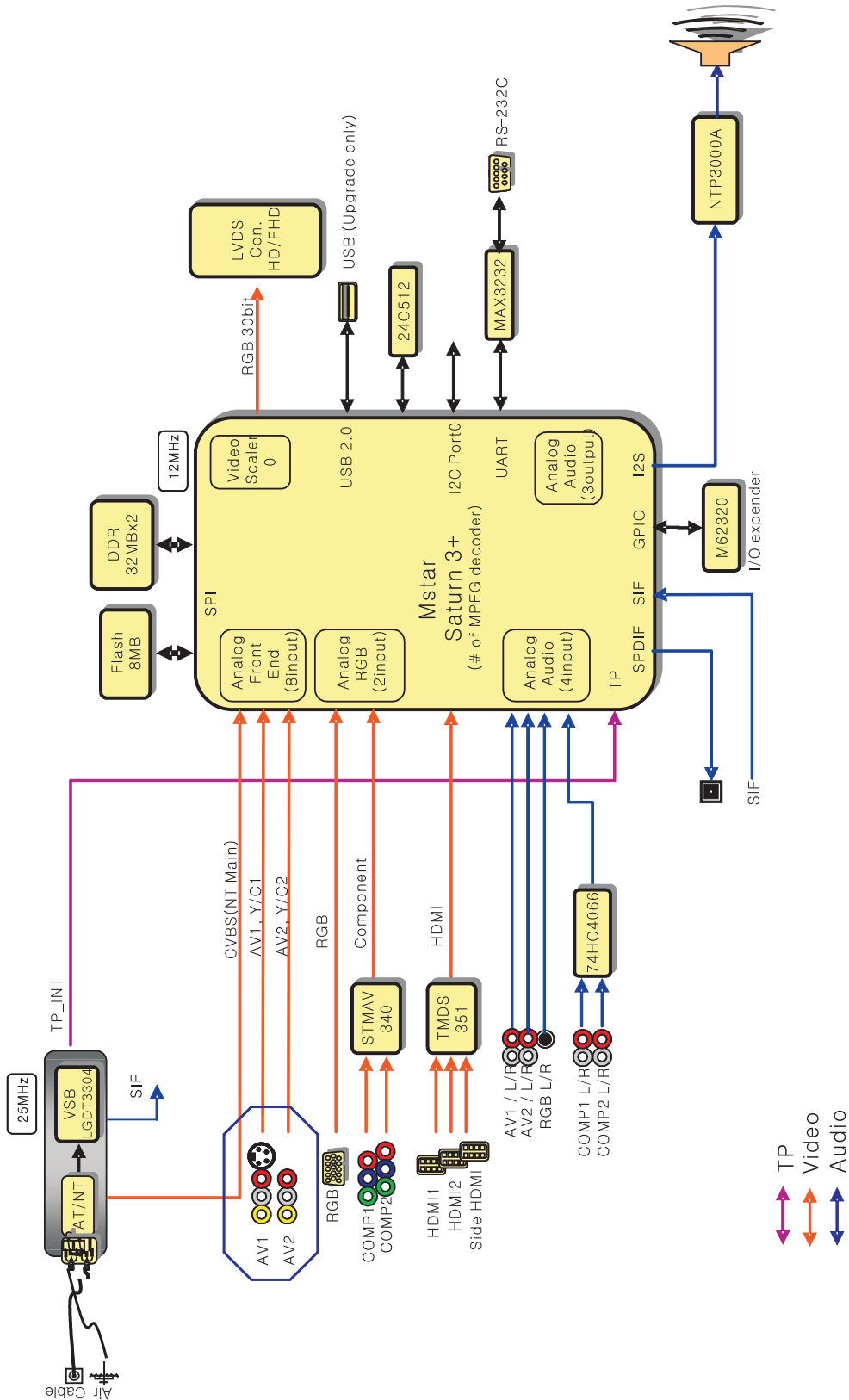
TROUBLE SHOOTING GUIDE

RGB Video Trouble Shooting



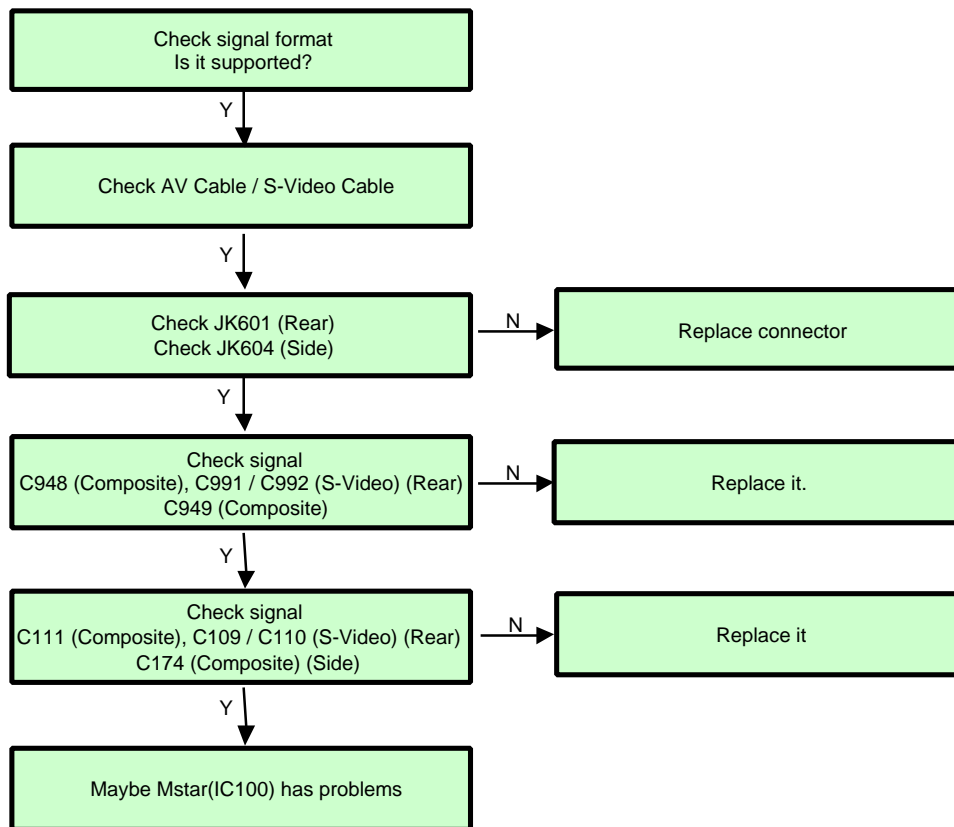
TROUBLE SHOOTING GUIDE

AV Video Trouble Shooting



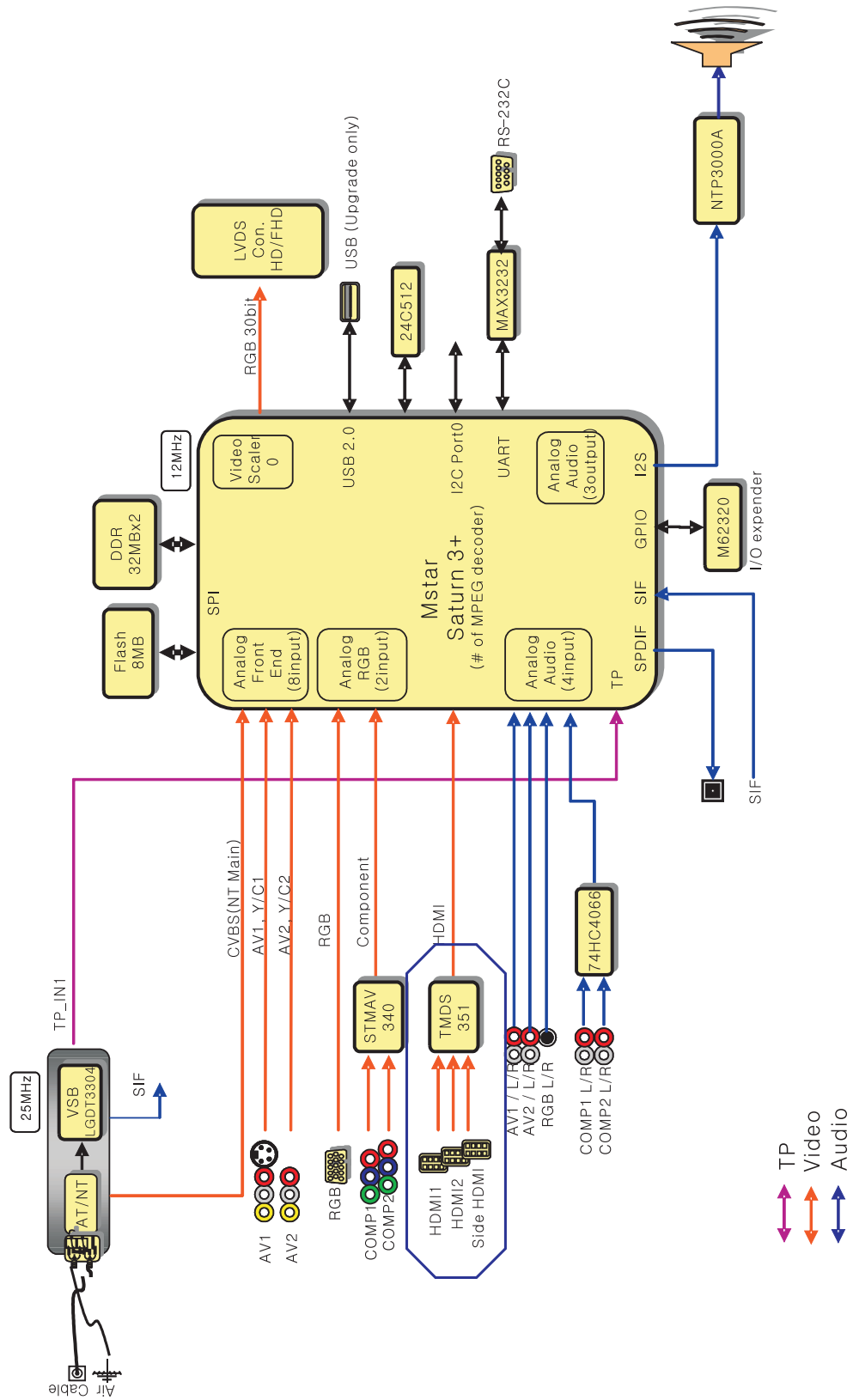
TROUBLE SHOOTING GUIDE

AV Video Trouble Shooting



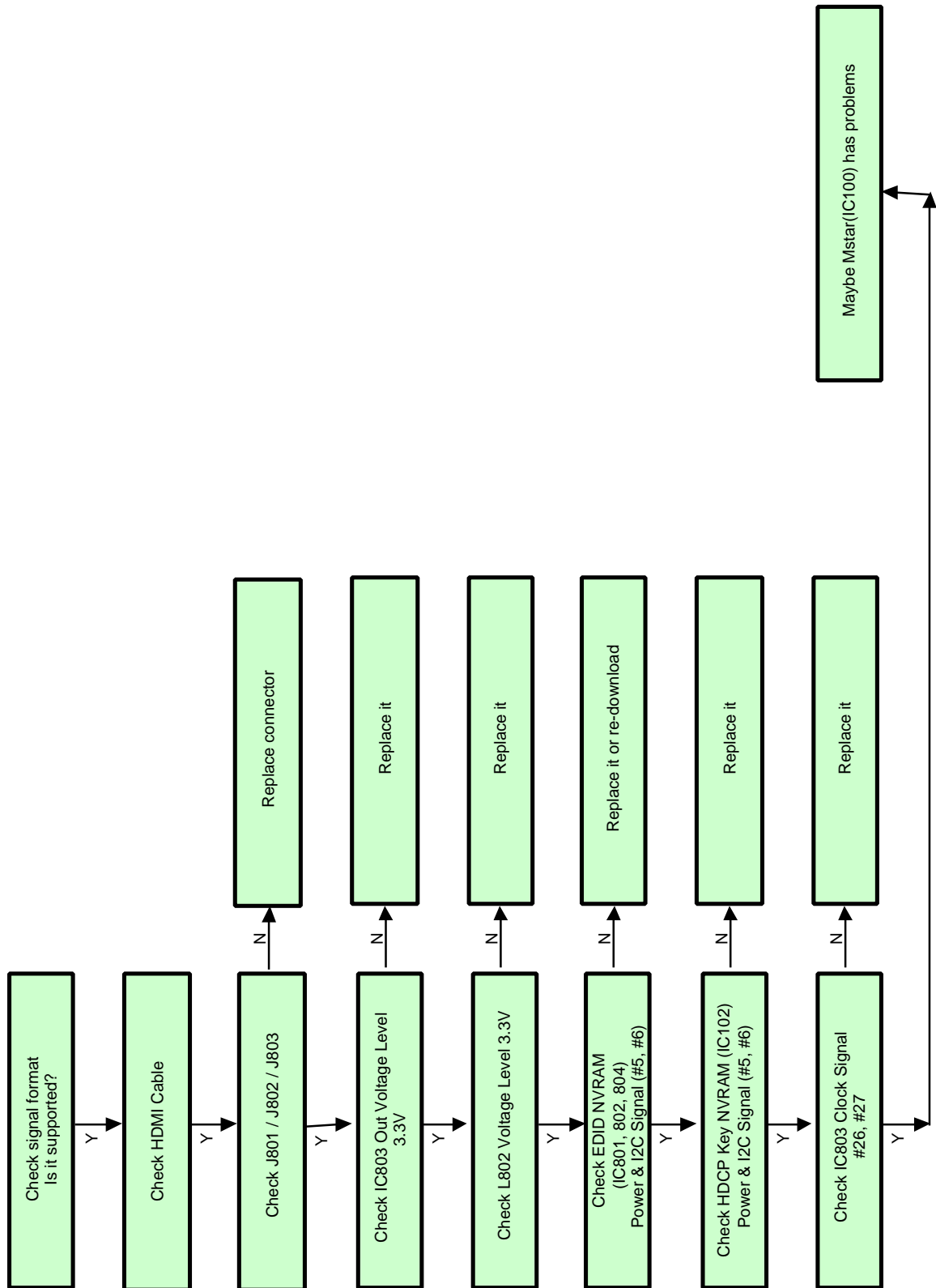
TROUBLE SHOOTING GUIDE

HDMI Video Trouble Shooting



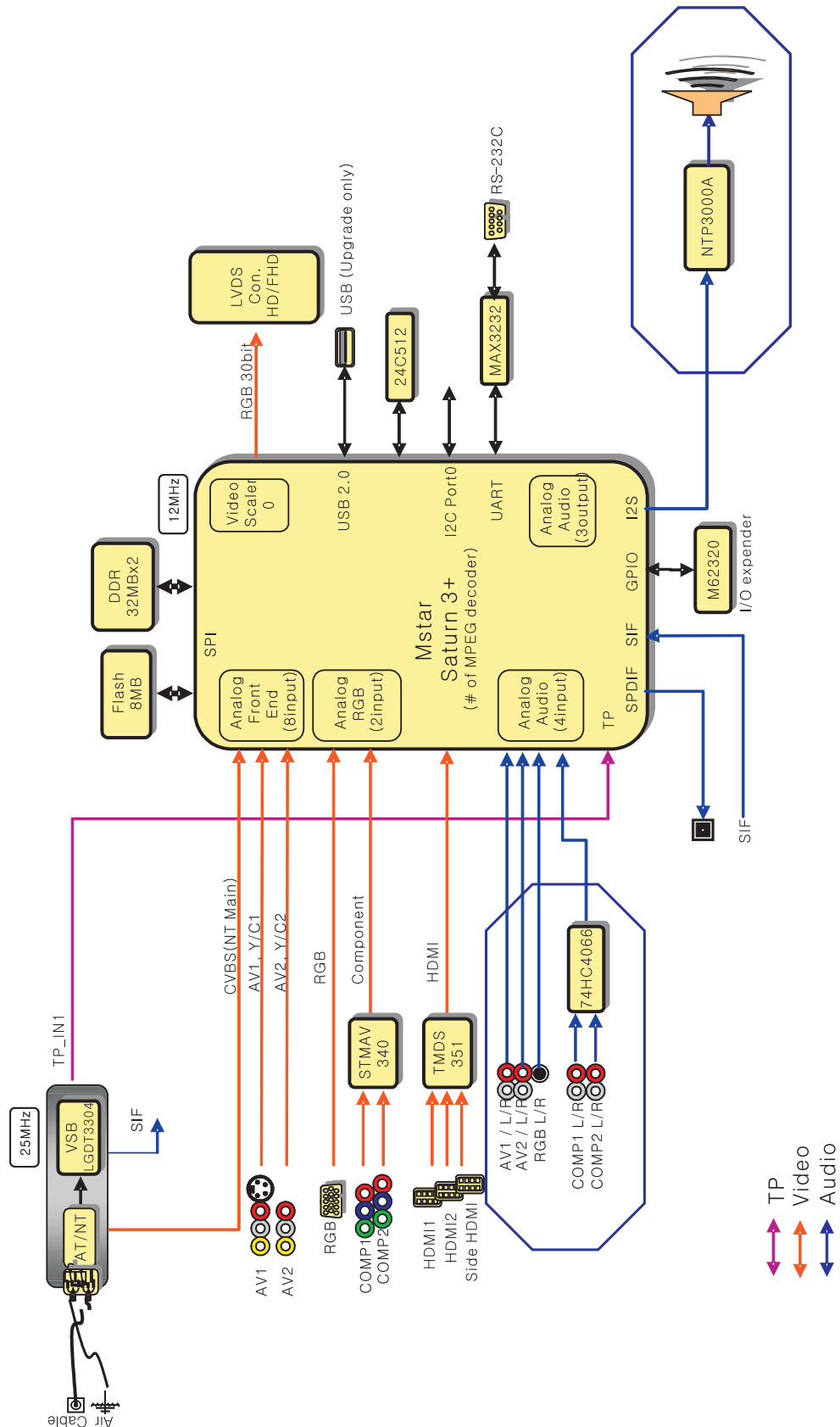
TROUBLE SHOOTING GUIDE

HDMI Video Trouble Shooting



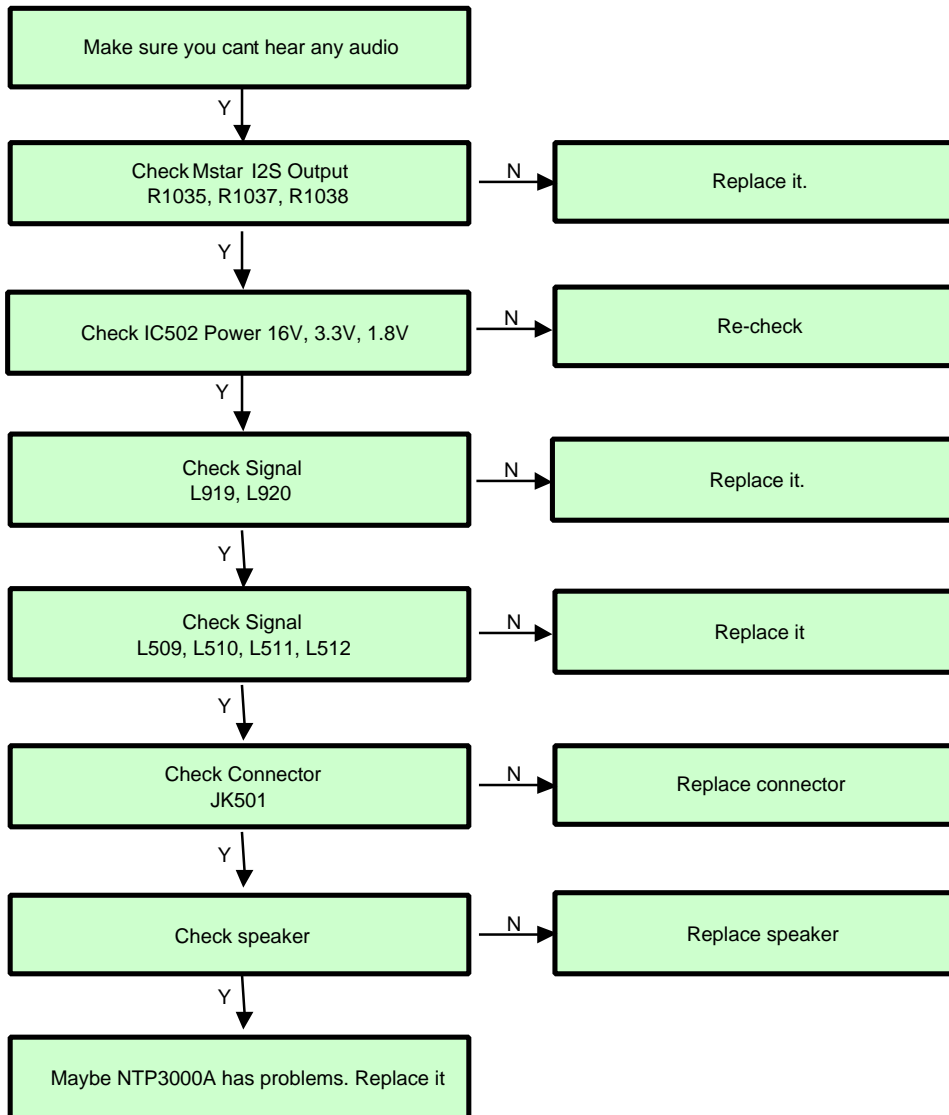
TROUBLE SHOOTING GUIDE

All Source Audio Trouble Shooting



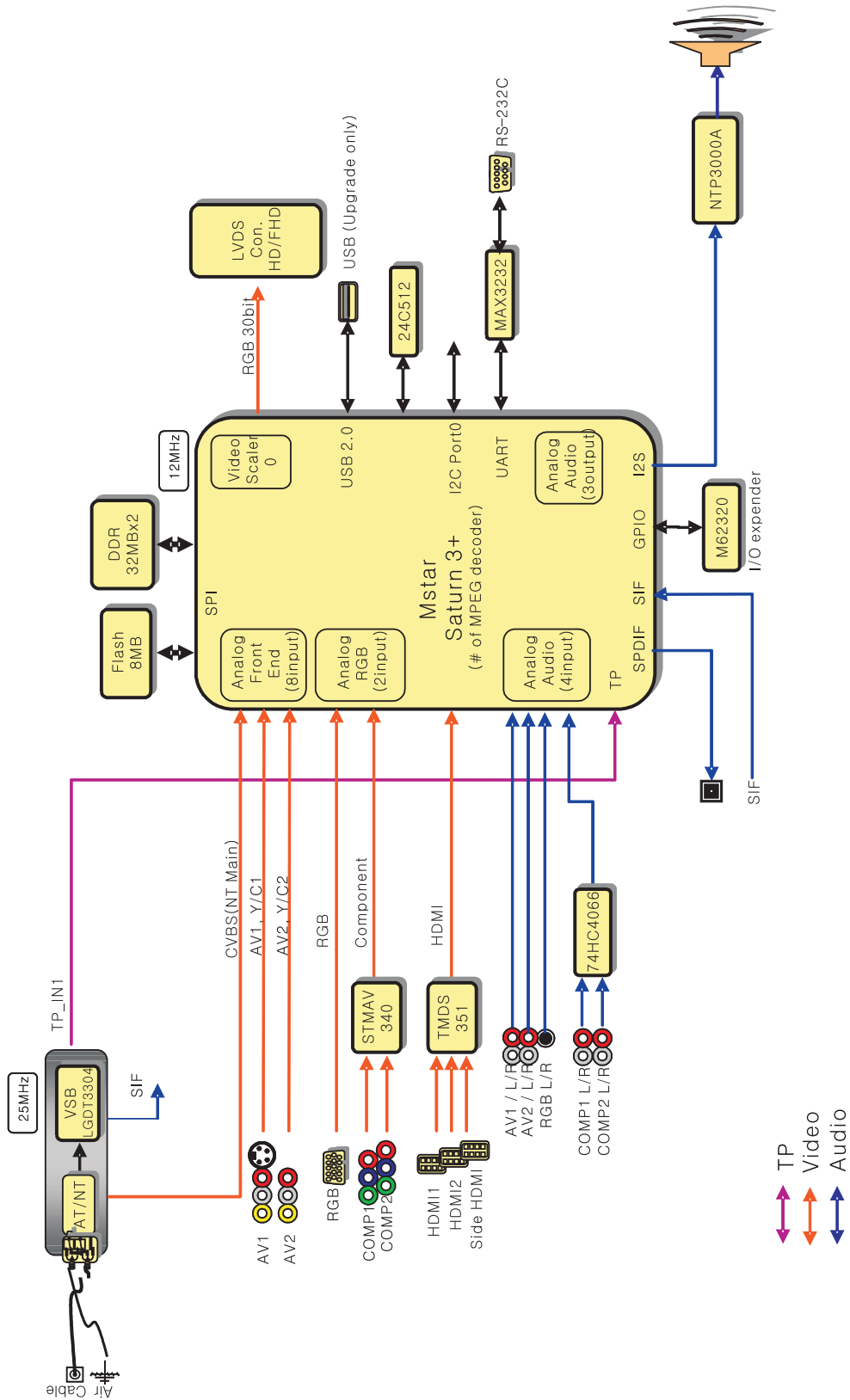
TROUBLE SHOOTING GUIDE

All Source Audio Trouble Shooting



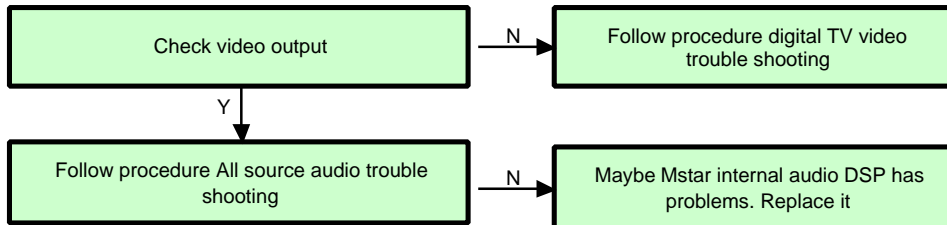
TROUBLE SHOOTING GUIDE

Digital TV Audio Trouble Shooting



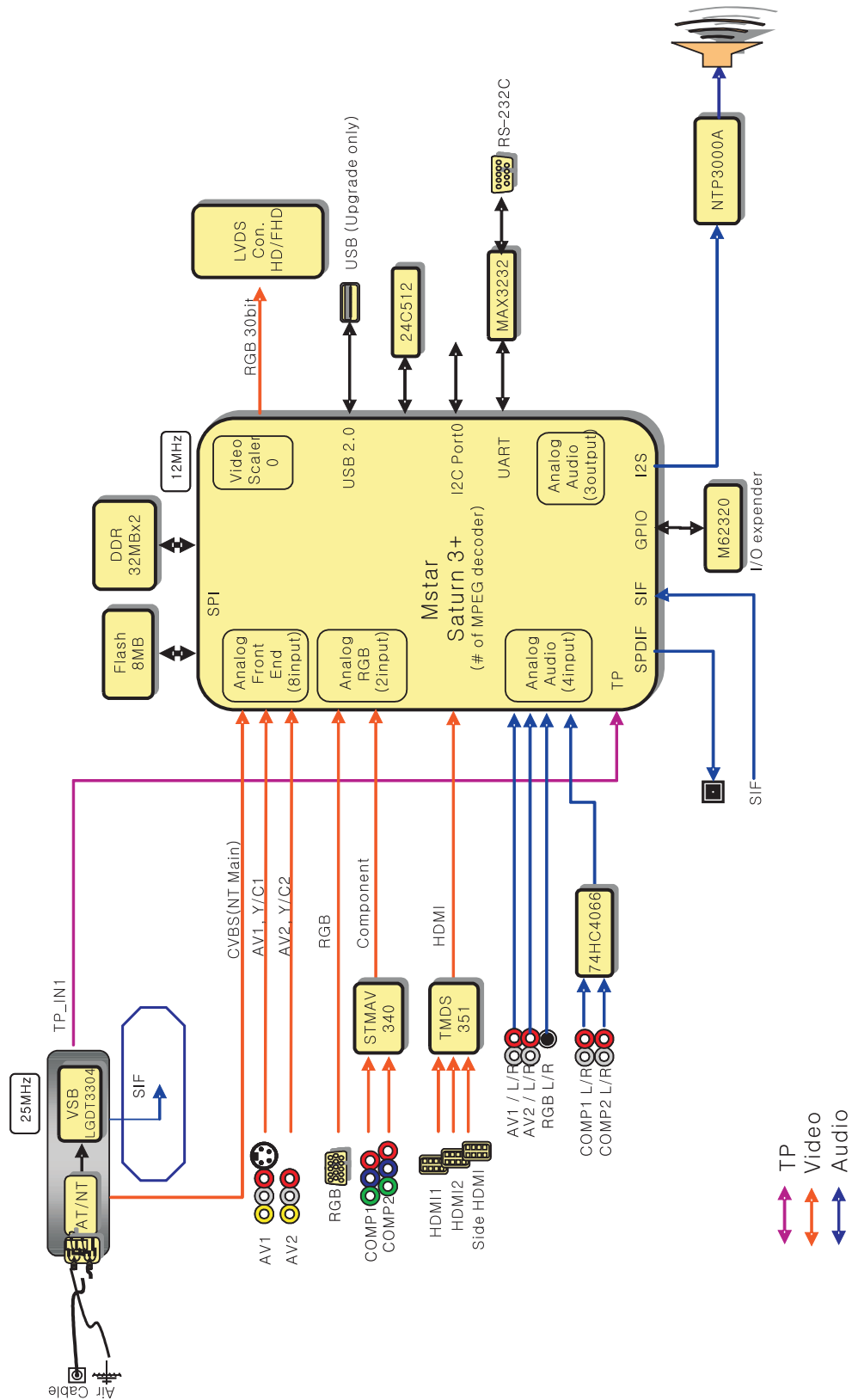
TROUBLE SHOOTING GUIDE

Digital TV Audio Trouble Shooting



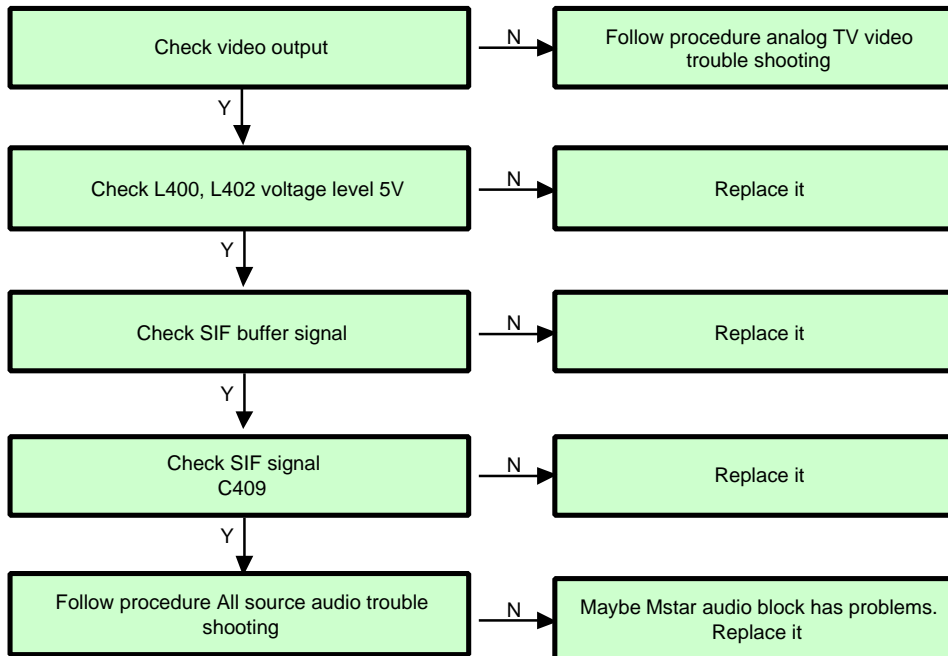
TROUBLE SHOOTING GUIDE

Analog TV Audio Trouble Shooting



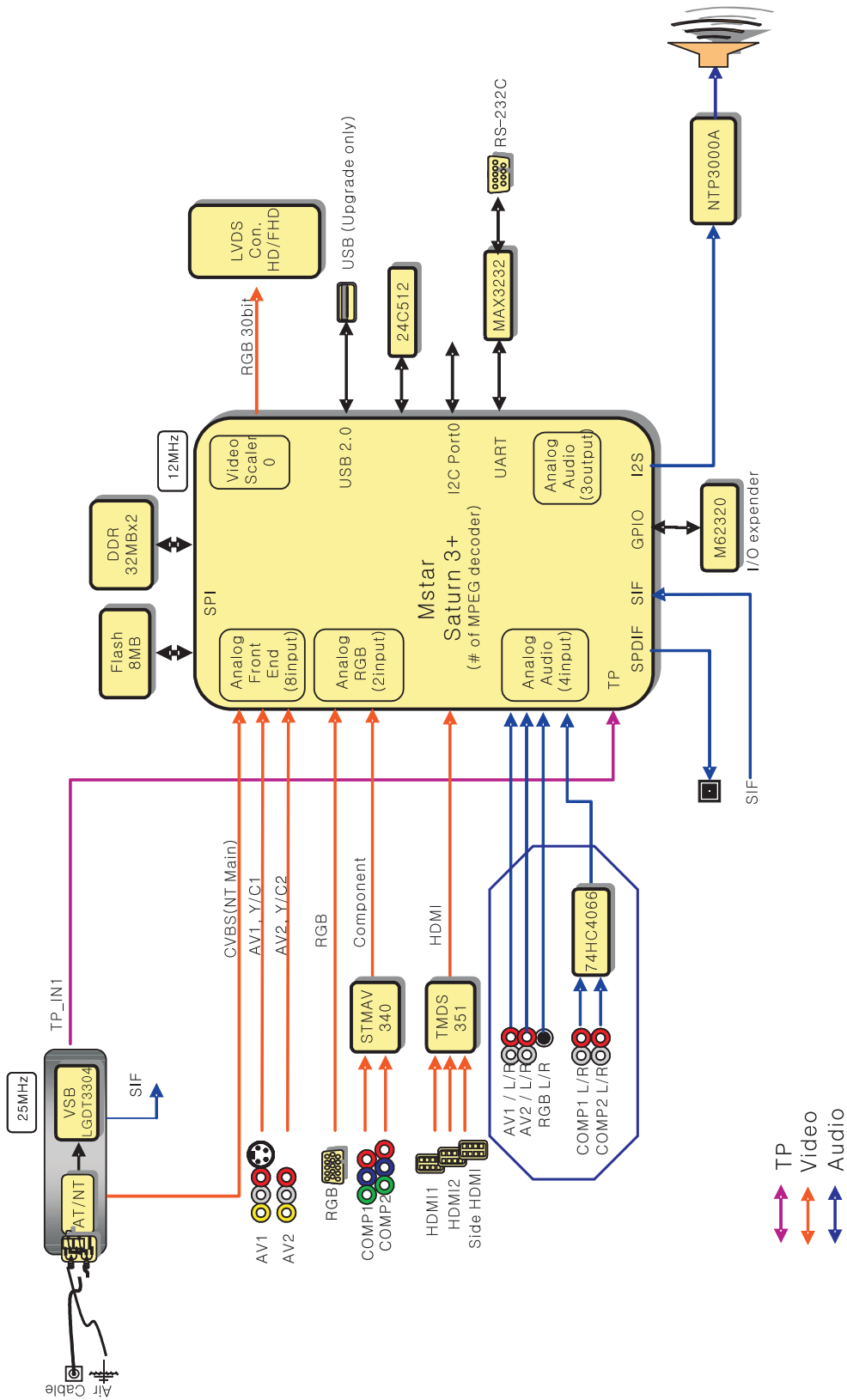
TROUBLE SHOOTING GUIDE

Analog TV Audio Trouble Shooting



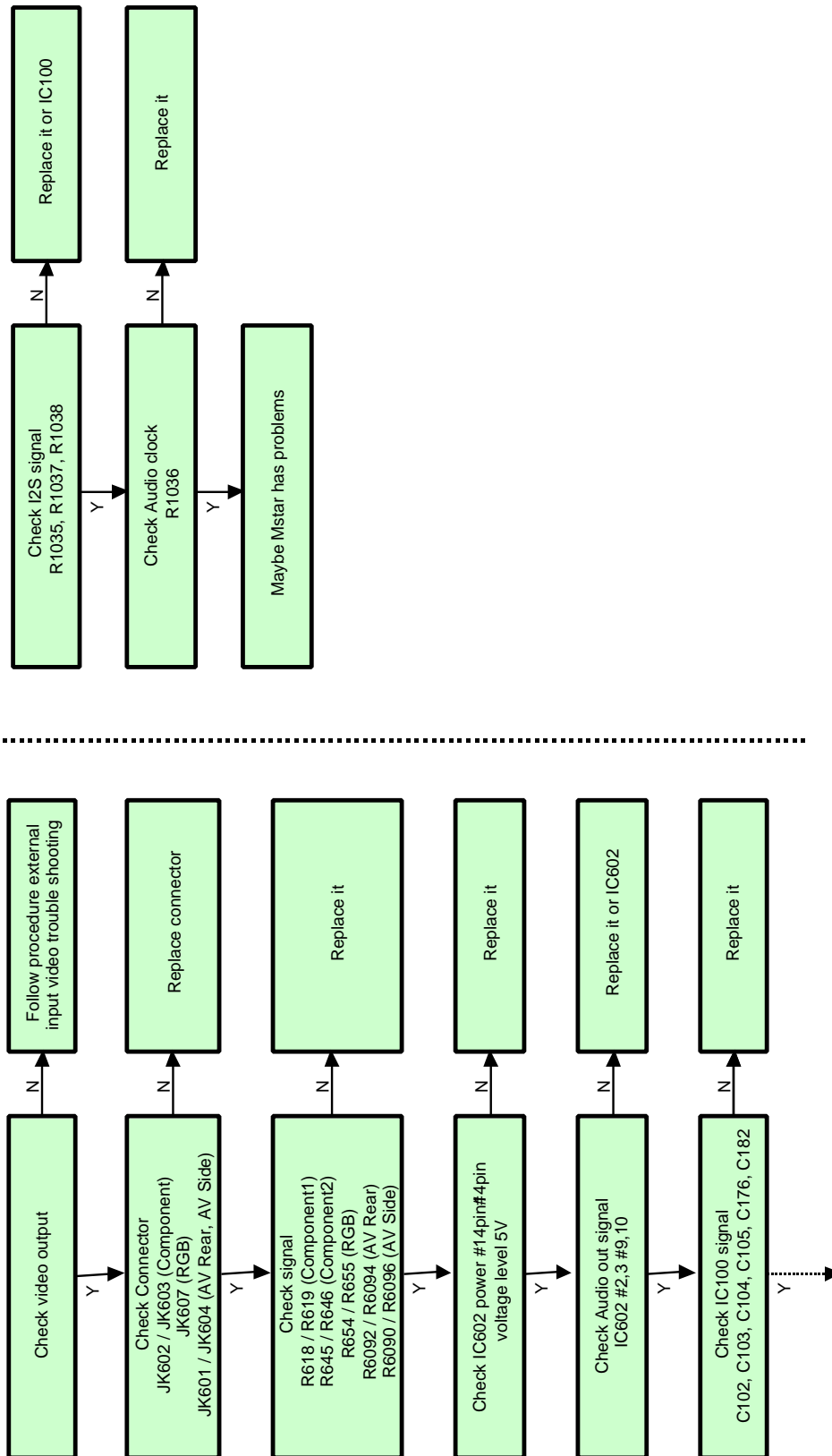
TROUBLE SHOOTING GUIDE

Component / RGB / AV Audio Trouble Shooting



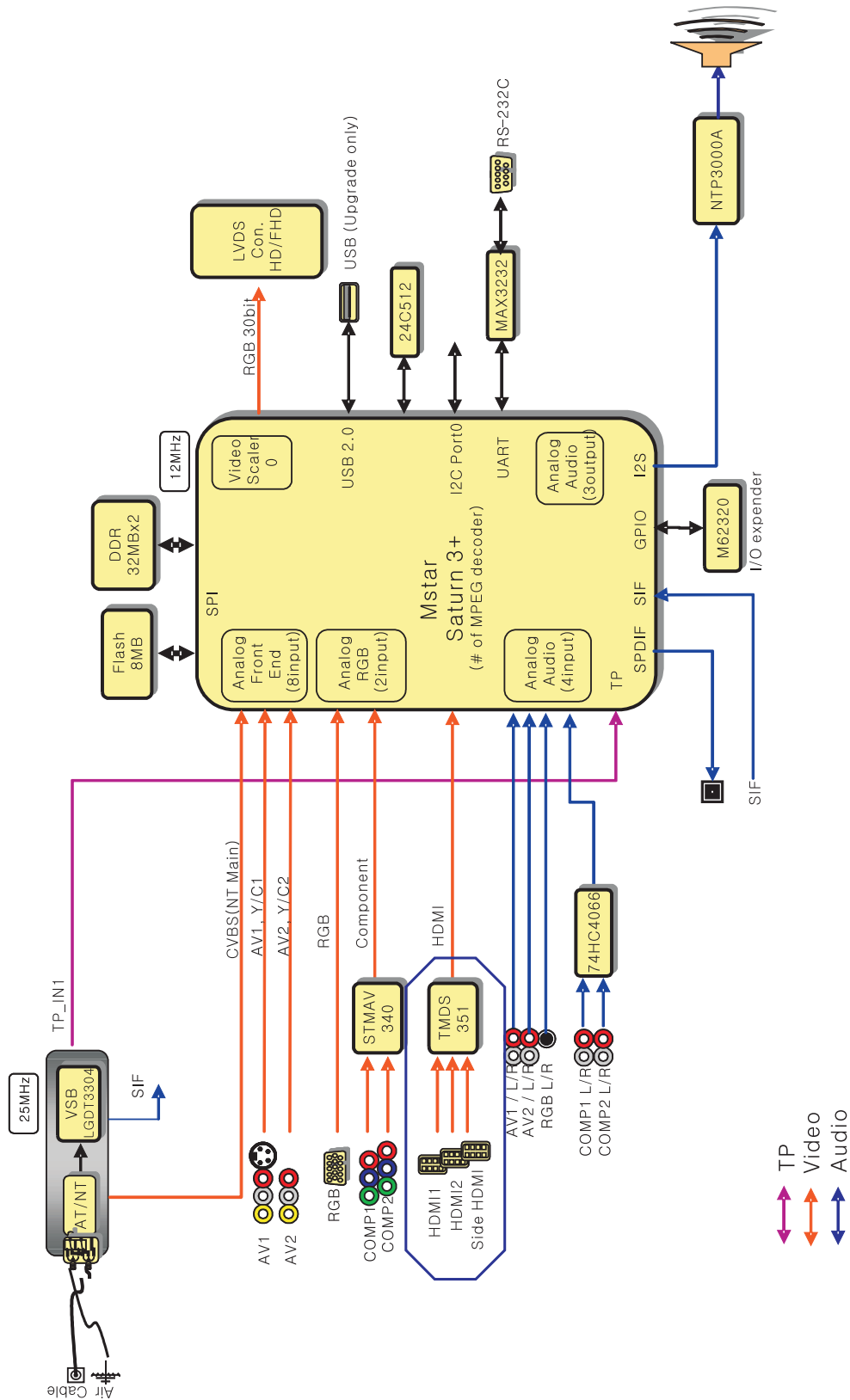
TROUBLE SHOOTING GUIDE

Component / RGB / AV Audio Trouble Shooting



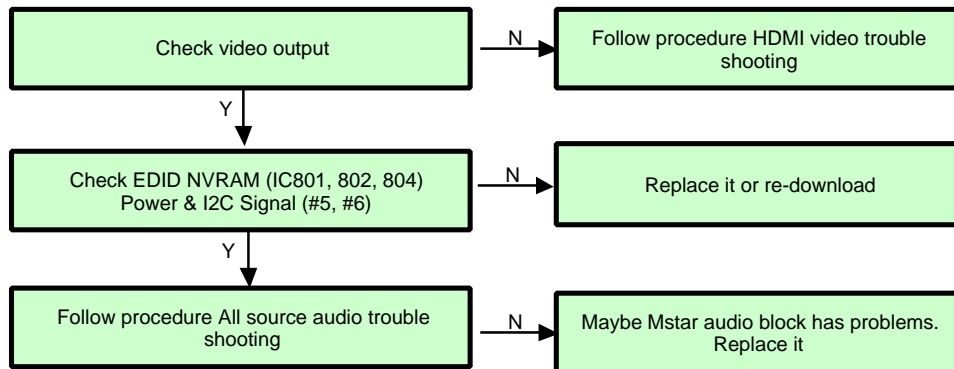
TROUBLE SHOOTING GUIDE

HDMI Audio Trouble Shooting



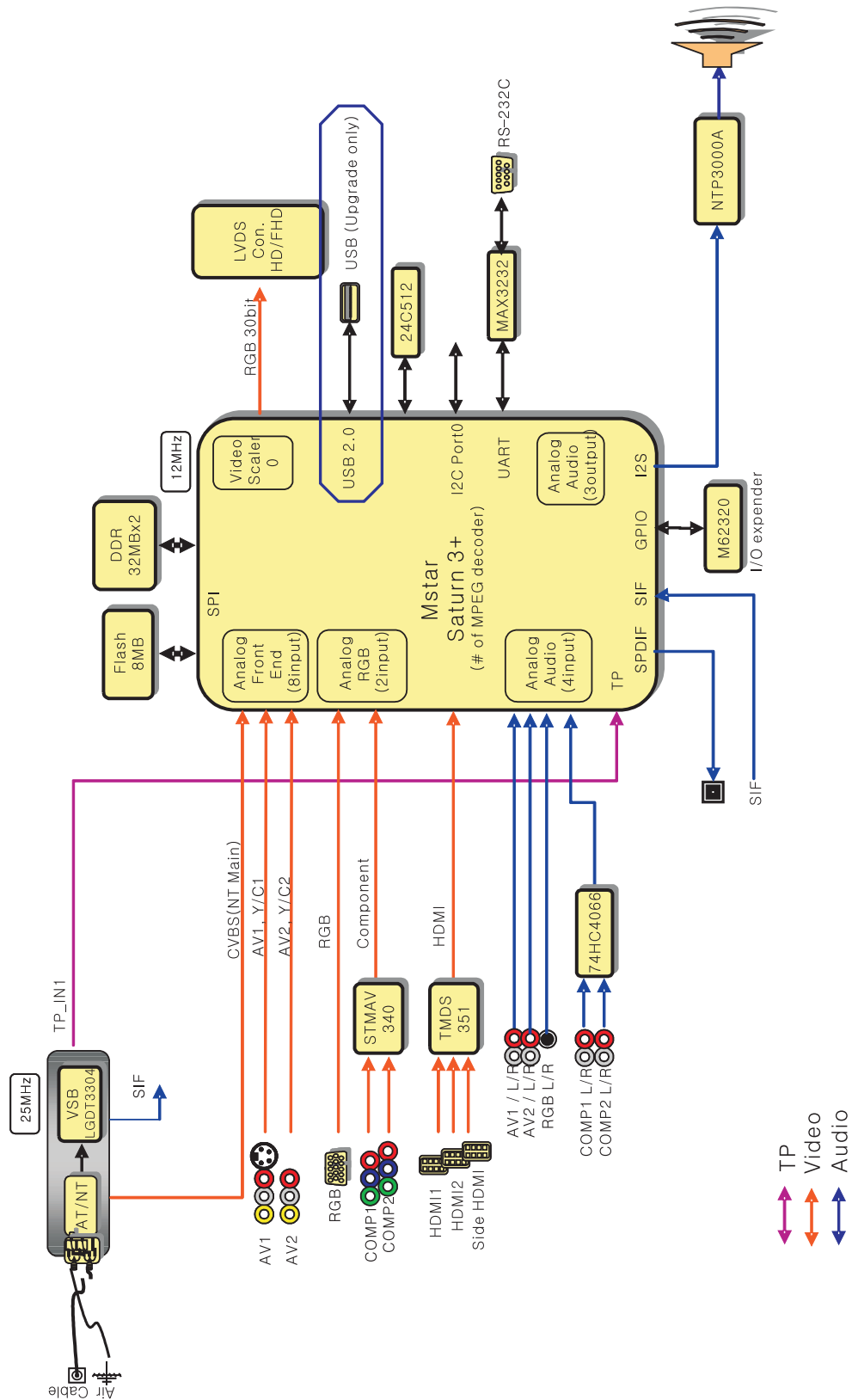
TROUBLE SHOOTING GUIDE

HDMI Audio Trouble Shooting



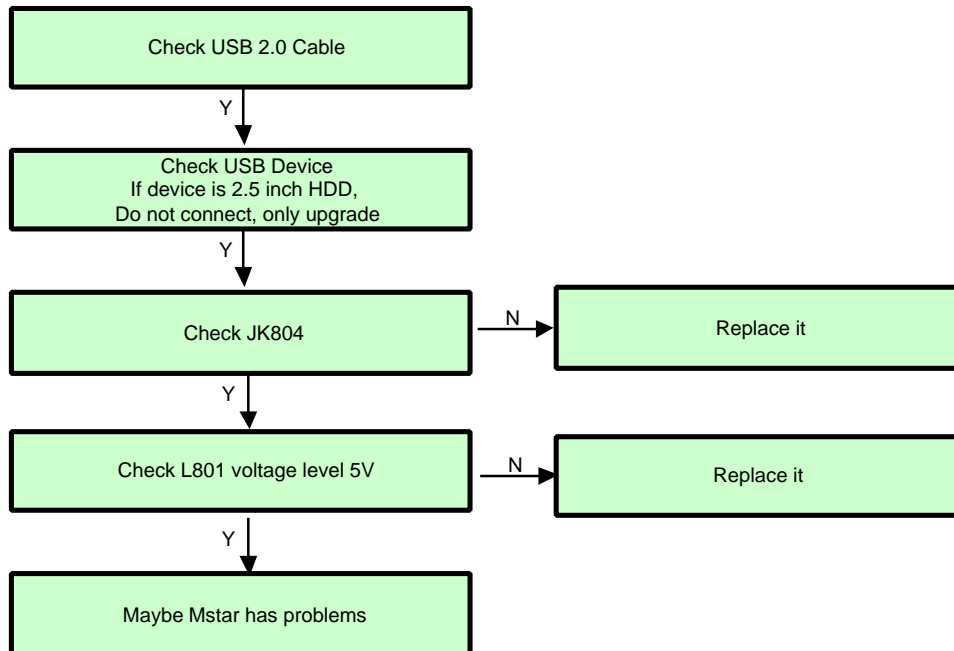
TROUBLE SHOOTING GUIDE

USB Trouble Shooting



TROUBLE SHOOTING GUIDE

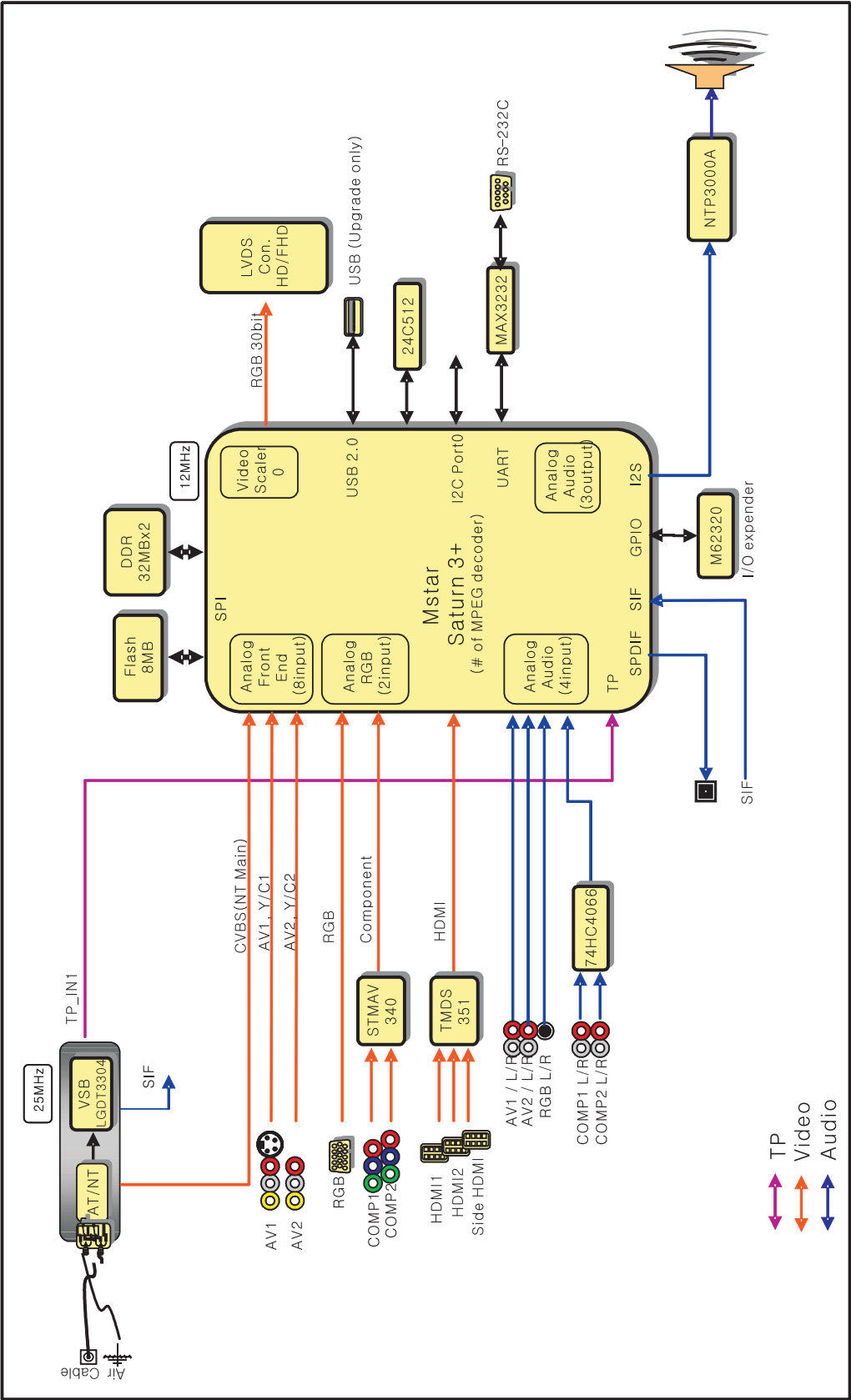
USB Trouble Shooting



※Exception

- USB power could be disabled by inrushing current
- In this case, remove the device and try to reboot the TV (AC power off/on)

BLOCK DIAGRAM

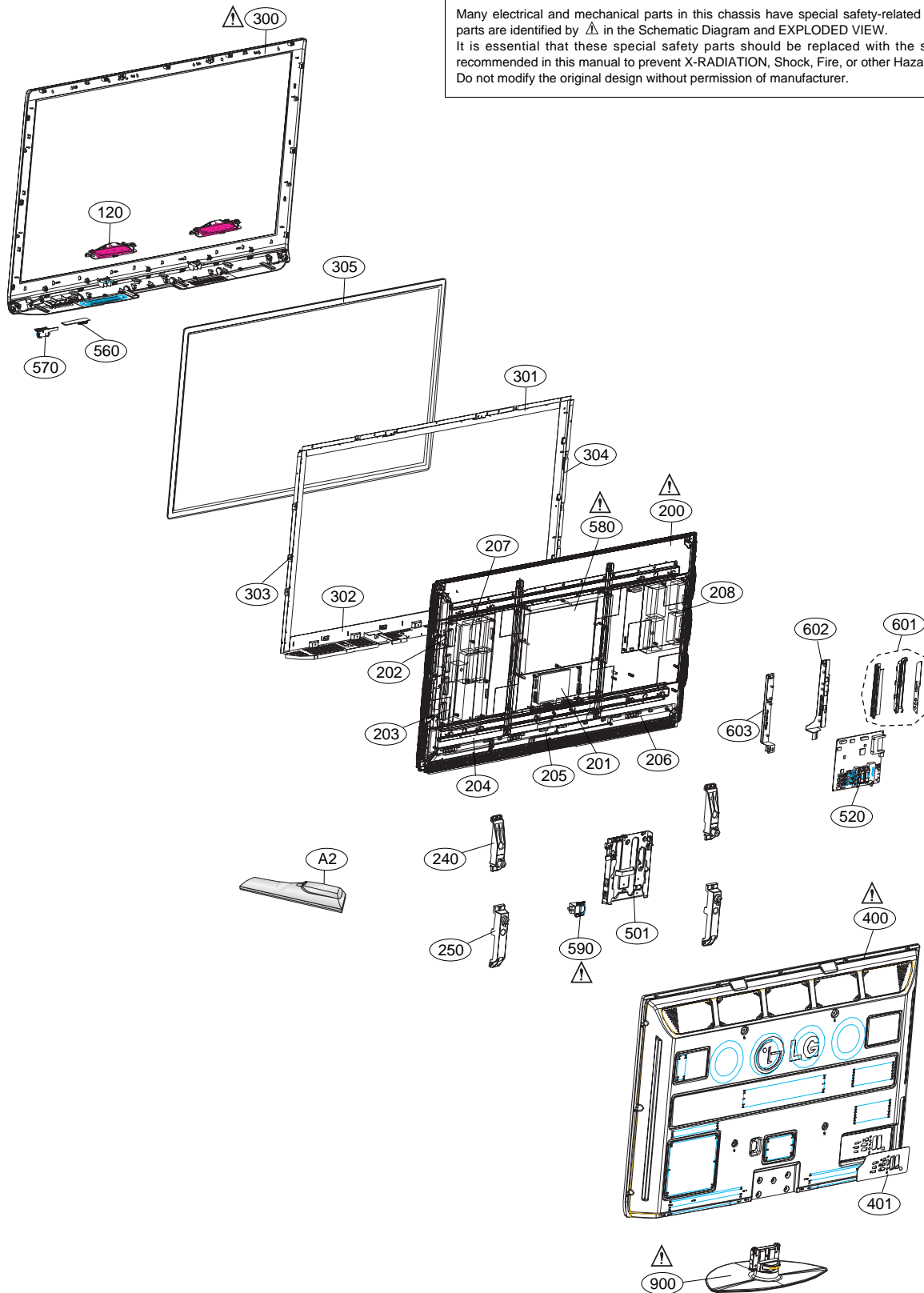





EXPLODED VIEW

IMPORTANT SAFETY NOTICE

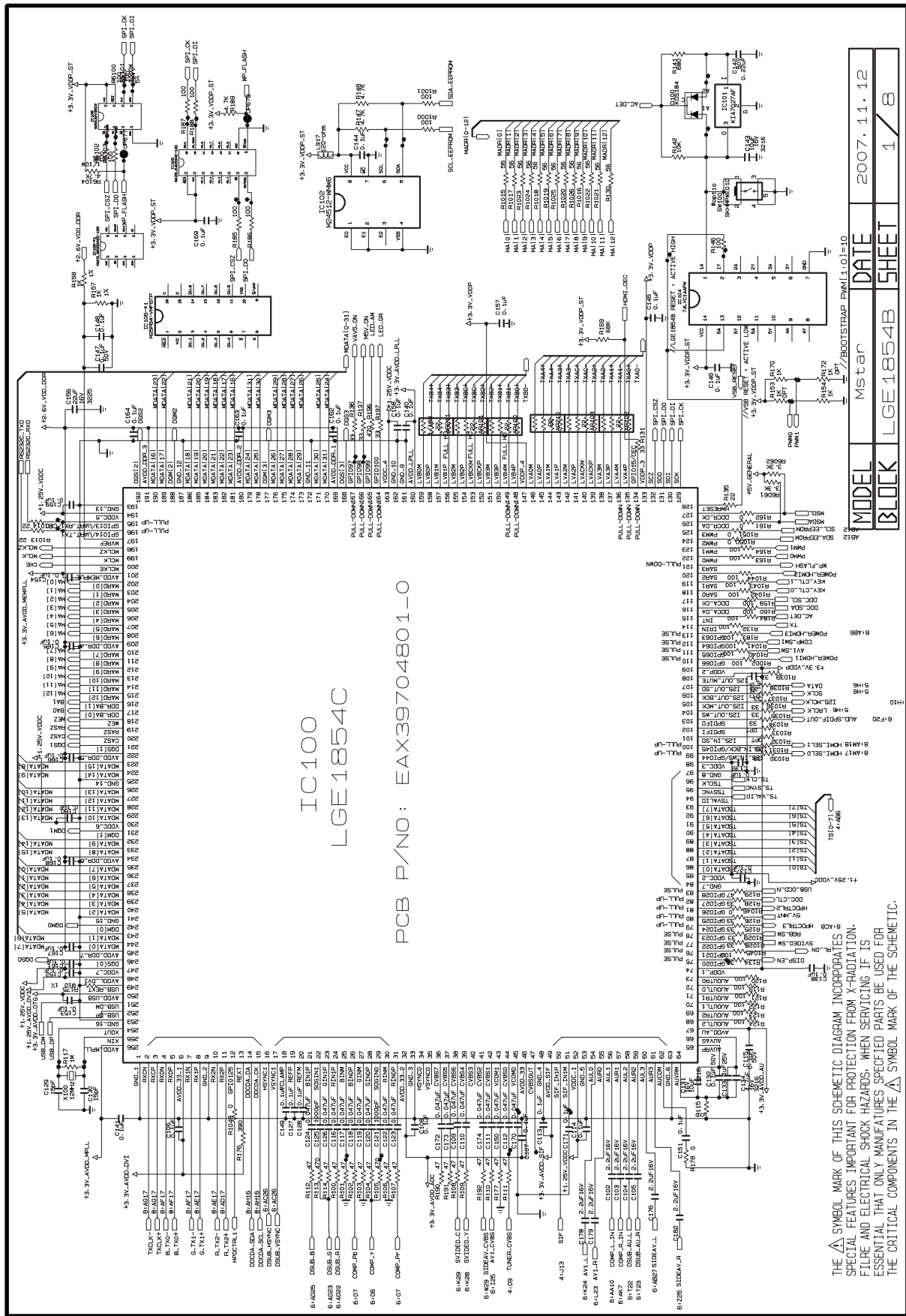
Many electrical and mechanical parts in this chassis have special safety-related characteristics. These parts are identified by ⚠ in the Schematic Diagram and EXPLODED VIEW. It is essential that these special safety parts should be replaced with the same components as recommended in this manual to prevent X-RADIATION, Shock, Fire, or other Hazards. Do not modify the original design without permission of manufacturer.

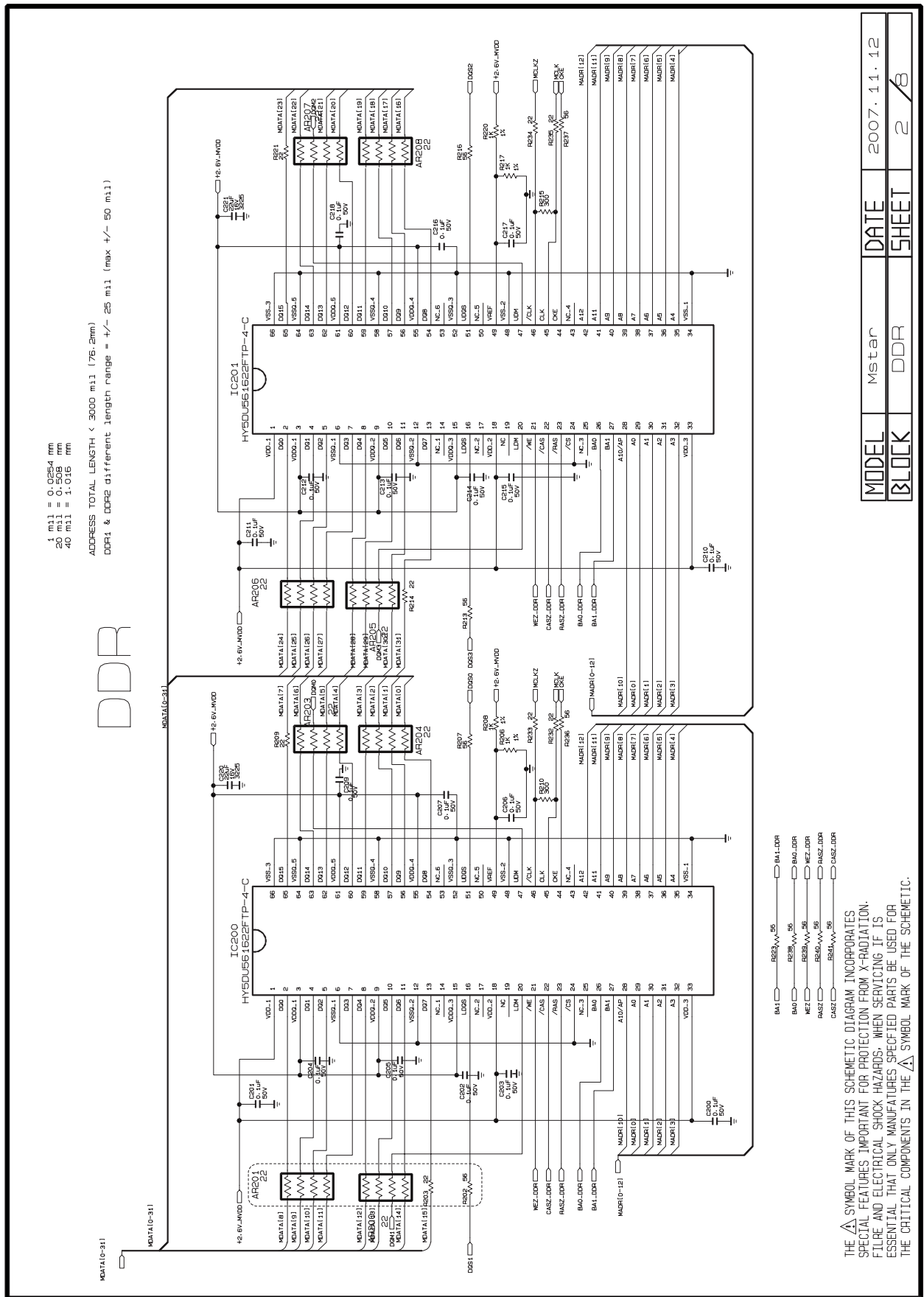


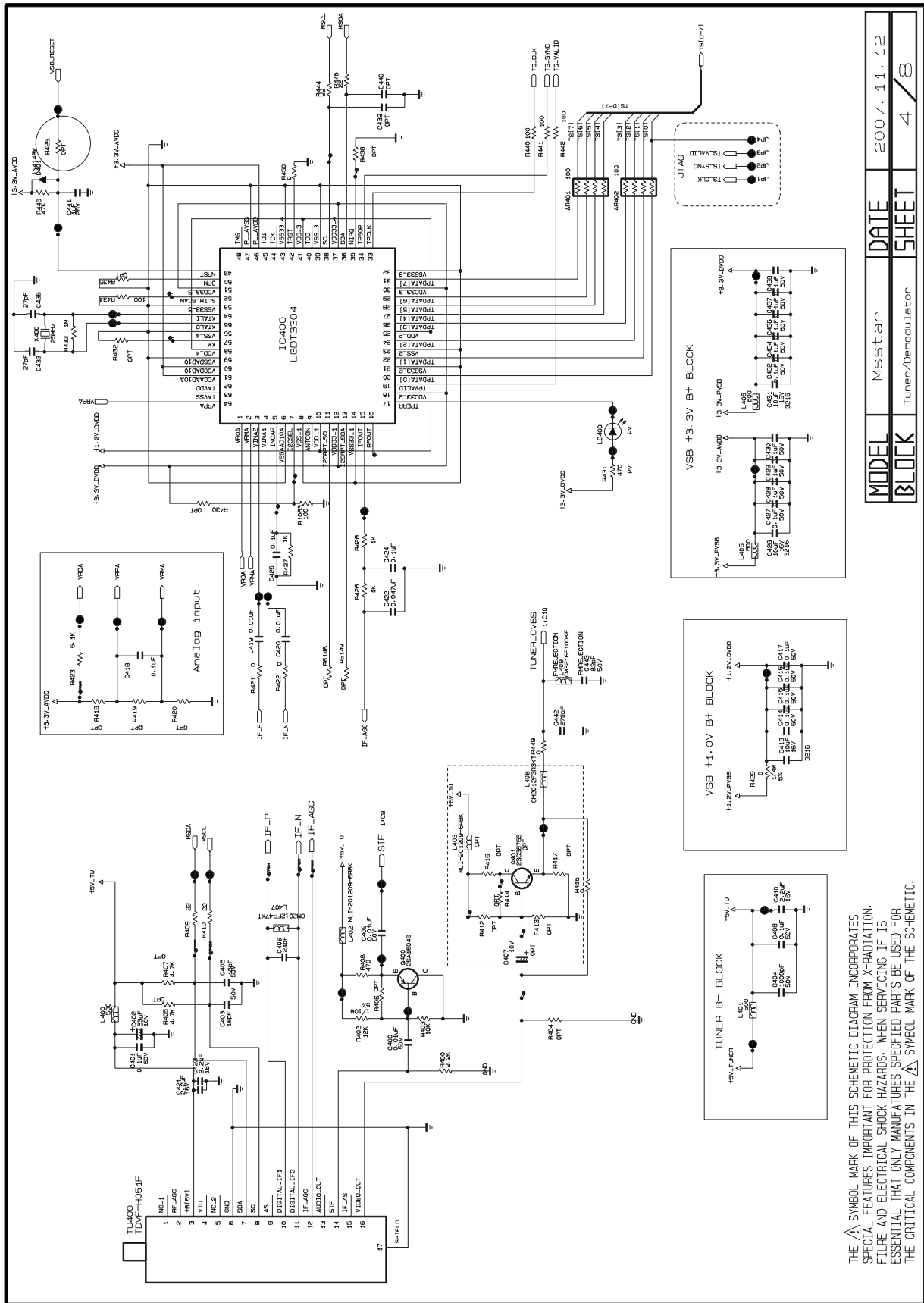
EXPLODED VIEW PARTS LIST

The components identified by mark  is critical for safety.
Replace only with part number specified.

| No. | Part No. | Descriptions |
|---|-------------|--|
|  120 | EAB42609901 | Speaker,Full Range G1640501 FERRITE 10W 8OHM 82DB 100HZ 150X40 TRACK LUG EMSONIC |
|  200 | EAJ40004706 | PDP,Module-FullHD PDP50H20000.ADLGB FULLHD 50INCH 1920X1080 16/9 PDP Module AU |
| 201 | EBR41731901 | PCB Assembly,CTRL ASS'Y 50 H2 Single Scan FullHD CTRL ASS'Y |
| 202 | EBR41736101 | PCB Assembly,YDRV ASS'Y 50 H2 EVEN-ODD CIRCUIT Y DRIVE TOP B/D ASS'Y |
| 203 | EBR41736401 | PCB Assembly,YDRV ASS'Y 50 H2 EVEN-ODD CIRCUIT Y DRIVE BOTTOM B/D ASS'Y |
| 204 | EBR43432201 | PCB Assembly,XRLB ASSY 50 H2 XL B/D |
| 205 | EBR43432501 | PCB Assembly,XRCB ASSY 50 H2 |
| 206 | EBR43432401 | PCB Assembly,XRRB ASSY 50 H2 |
| 207 | EBR41728701 | PCB Assembly,YSUS ASS'Y 50 H2 even_odd |
| 208 | EBR41733201 | PCB Assembly,ZSUS ASS'Y 50 H2 |
| 240 | AJJ35707506 | Supporter Assembly,50PG3 SUPPORTER VERTICAL TOP, C/SKD |
| 250 | AJJ35707606 | Supporter Assembly,50PG3 SUPPORETR VERTICAL BOTTOM, C/SKD |
|  300 | ABJ34782921 | Cabinet Assembly,50PG30F(HFD)-UA PU84C 50 LGERS CABINET PH ASSY ABJ34782911 |
| 301 | AJJ34783007 | Supporter Assembly,50PG30 FHD Supp. Filter Top Assy C/SKD |
| 302 | AJJ34783107 | Supporter Assembly,50PG30 FHD Supp. Filter Bottom Assy C/SKD |
| 303 | AJJ34783307 | Supporter Assembly,50PG30 FHD Supp. Filter Right Assy C/SKD |
| 304 | AJJ34783407 | Supporter Assembly,50PG30 FHD Supp. Filter Left Assy C/SKD |
| 305 | MDJ42351002 | Filter,CUTTING ACRYL GLASS FILTER PDP 50 SKC NORMAL (MESH) |
| 306 | ABA36825001 | Bracket Assembly,WOOFER PDP - 42 50 60 WOOFER SPEAKER BRACKET ASSY |
|  400 | ACQ34783521 | Cover Assembly,Rear 50PG30F(HFD)-UA PB82C 50 LGERS LOCAL B/C PH ASSY ATSC, M-STAR |
| 401 | MCK42608603 | Cover,Rear PRESS PCM 0.5t 50PG3 SECD(EGI) 50PG30 B/COVER RS 3th CORE TYPEC:ATSC M-STAR |
| 501 | MJH40272502 | Supporter,PRESS EGI 1.6 GUIDE EGI 50PG6 Supp module guide,SKD |
| 520 | EBR51295201 | PCB Assembly,Main MAIN M.I PU84C 50PG30F-UA - Manual Insert PCB Assembly |
| 560 | EBR51294601 | PCB Assembly,Sub SUB M.I PU84C PG30F-UA SKD LOCAL KEY |
| 570 | EBR43329401 | PCB Assembly,Sub SUB M.I PU84A 42/50PG20 N. AMERICA PREAMP - |
|  580 | EAY43521401 | SMPS,AC/DC EAY4141 100VTO240V 570W 50~60 UL60950,UL60065,EN60950, EN600665 50H2 LGIT |
|  590 | EAM35012718 | Filter,AC Line IF2-N10DEW2 1.1mH 250VAC 10A 0.33uF 1000pF (YEONHO)YH396-03 300/230MM |
| 601 | ABA35619217 | Bracket Assembly,50PG20-UA PD83A MSTAR(HDMI 3, USB SERVICE ONLY, WITHOUT CI SLOT) |
| 602 | MGJ41164513 | Plate,PRESS SBHG 0.8 AV SBHG-A 50/60 SUPPORTER MAIN CHASSIS COMMON(SIDE A/V) 141.5 FOR |
| 603 | MGJ41163807 | Plate,PRESS SBHG 0.8 AV SBHG-A PLATE SUPPORTER MAIN CHASSIS CENTER(MIDDLE) 141.5, |
|  900 | AAN34783809 | Base Assembly,STAND 50PG30 - NEW SWIVEL STAND ASSY LGERS LOCAL PH(AAN34783804) |
| A2 | MKJ42519603 | Remote Controller,MOLD ABS HF380 PA81A 50PG20-UA ATSC M-STAR |

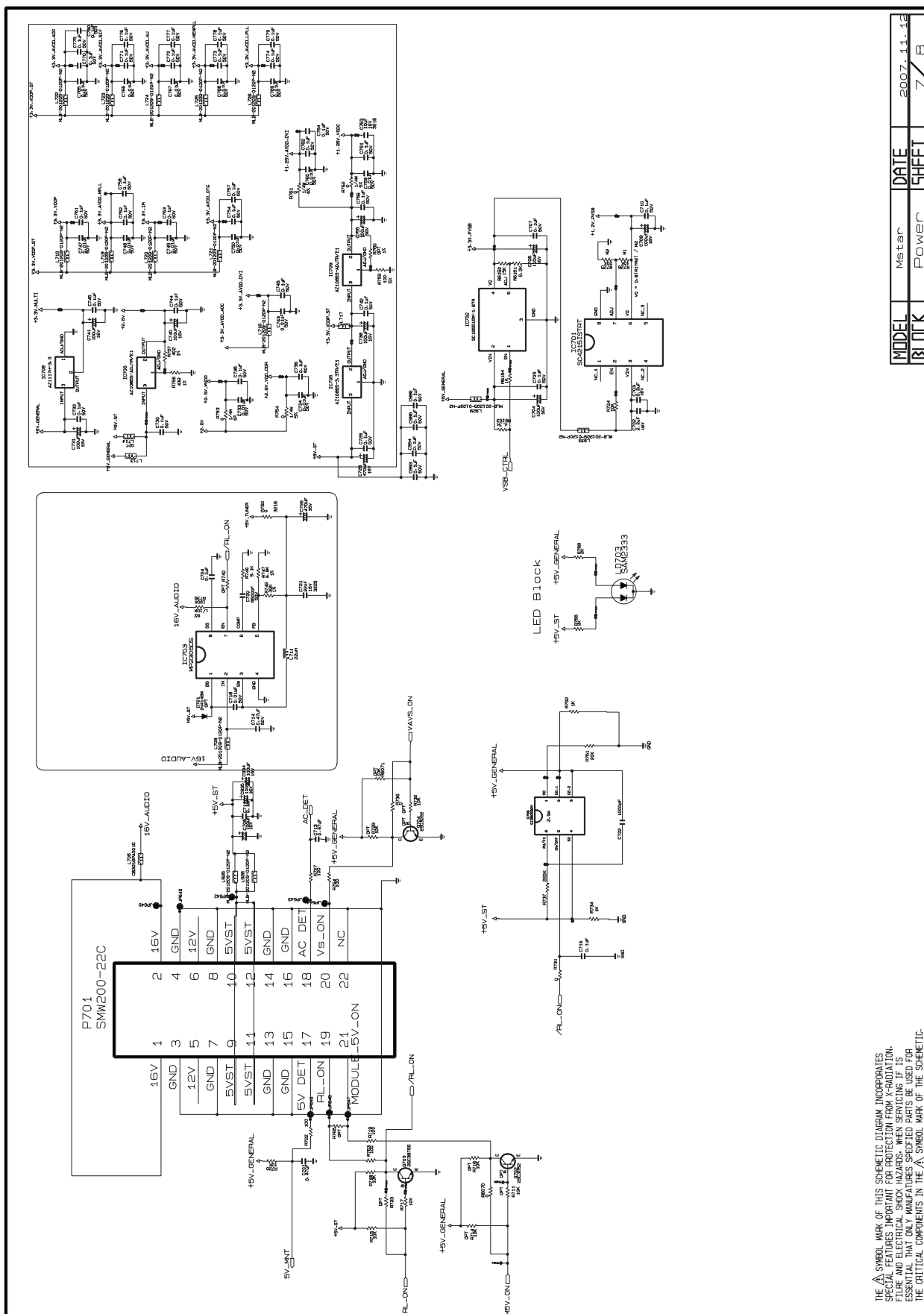






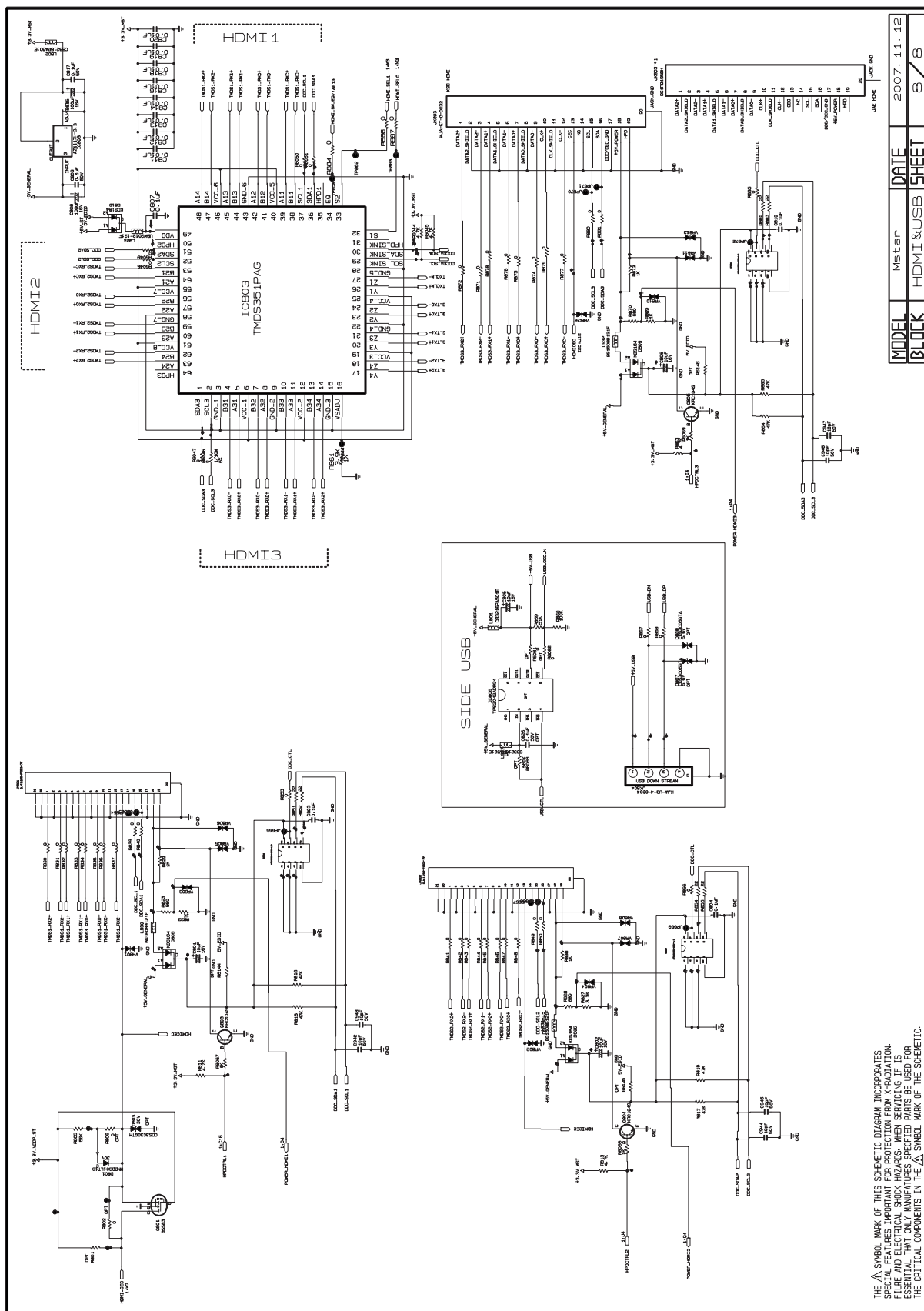
THE SYMBOL MARK OF THIS SCHEMATIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION. FILTRER AND ELECTRICAL SHOCK HAZARDS. WHEN SERVICING IF IS ESSENTIAL THAT ONLY MANUFACTURES SPECIFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE SYMBOL MARK OF THE SCHEMATIC.

| | | | |
|-------|-------------------|-------|--------------|
| MODEL | Mistar | DATE | 2007. 11. 12 |
| BLOCK | Tuner/Demodulator | SHEET | 4 / 8 |



THE SYMBOL MARK OF THIS SCHEMATIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION. FILTRATION AND ELECTRICAL SHOCK HAZARDS. WHEN SERVICING IF IS ESSENTIAL TO WEAR PROTECTIVE EQUIPMENT AND TO USE PROPER SAFETY PROCEDURES. THE CRITICAL COMPONENTS IN THE SYMBOL MARK OF THE SCHEMATIC.

| | | | |
|-------|-------|-------|------------|
| MODEL | Mstar | DATE | 2007.11.12 |
| BLOCK | Power | SHEET | 7 / 8 |



THE SYMBOL MARK OF THIS SCHEMATIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION. FILTRATION AND ELECTRICAL SHOCK HAZARDS. WHEN SERVING IF IS USED, THE MARK OF THIS SCHEMATIC DIAGRAM MUST BE USED. THE MARK OF THIS SCHEMATIC DIAGRAM MUST BE USED.

| | | | |
|-------|----------|-------|------------|
| MODEL | Mstar | DATE | 2007.11.12 |
| BLOCK | HDMI&USB | SHEET | 8 / 8 |

Figure 1 is a detailed schematic diagram of the electronic circuit for the "T-72" radio receiver. The diagram shows the internal layout of the circuit board, including the placement of various components and their interconnections. Key components and sections are labeled as follows:

- ICs:** IC801, IC802, IC803, IC804, IC805, IC806, IC807, IC808, IC809, IC810, IC811, IC812, IC813, IC814, IC815, IC816, IC817, IC818, IC819, IC820, IC821, IC822, IC823, IC824, IC825, IC826, IC827, IC828, IC829, IC830, IC831, IC832, IC833, IC834, IC835, IC836, IC837, IC838, IC839, IC840, IC841, IC842, IC843, IC844, IC845, IC846, IC847, IC848, IC849, IC850, IC851, IC852, IC853, IC854, IC855, IC856, IC857, IC858, IC859, IC860, IC861, IC862, IC863, IC864, IC865, IC866, IC867, IC868, IC869, IC870, IC871, IC872, IC873, IC874, IC875, IC876, IC877, IC878, IC879, IC880, IC881, IC882, IC883, IC884, IC885, IC886, IC887, IC888, IC889, IC890, IC891, IC892, IC893, IC894, IC895, IC896, IC897, IC898, IC899, IC900, IC901, IC902, IC903, IC904, IC905, IC906, IC907, IC908, IC909, IC910, IC911, IC912, IC913, IC914, IC915, IC916, IC917, IC918, IC919, IC920, IC921, IC922, IC923, IC924, IC925, IC926, IC927, IC928, IC929, IC930, IC931, IC932, IC933, IC934, IC935, IC936, IC937, IC938, IC939, IC940, IC941, IC942, IC943, IC944, IC945, IC946, IC947, IC948, IC949, IC950, IC951, IC952, IC953, IC954, IC955, IC956, IC957, IC958, IC959, IC960, IC961, IC962, IC963, IC964, IC965, IC966, IC967, IC968, IC969, IC970, IC971, IC972, IC973, IC974, IC975, IC976, IC977, IC978, IC979, IC980, IC981, IC982, IC983, IC984, IC985, IC986, IC987, IC988, IC989, IC990, IC991, IC992, IC993, IC994, IC995, IC996, IC997, IC998, IC999, IC1000.
- Resistors:** R1, R2, R3, R4, R5, R6, R7, R8, R9, R10, R11, R12, R13, R14, R15, R16, R17, R18, R19, R20, R21, R22, R23, R24, R25, R26, R27, R28, R29, R30, R31, R32, R33, R34, R35, R36, R37, R38, R39, R40, R41, R42, R43, R44, R45, R46, R47, R48, R49, R50, R51, R52, R53, R54, R55, R56, R57, R58, R59, R60, R61, R62, R63, R64, R65, R66, R67, R68, R69, R70, R71, R72, R73, R74, R75, R76, R77, R78, R79, R80, R81, R82, R83, R84, R85, R86, R87, R88, R89, R90, R91, R92, R93, R94, R95, R96, R97, R98, R99, R100, R101, R102, R103, R104, R105, R106, R107, R108, R109, R110, R111, R112, R113, R114, R115, R116, R117, R118, R119, R120, R121, R122, R123, R124, R125, R126, R127, R128, R129, R130, R131, R132, R133, R134, R135, R136, R137, R138, R139, R140, R141, R142, R143, R144, R145, R146, R147, R148, R149, R150, R151, R152, R153, R154, R155, R156, R157, R158, R159, R160, R161, R162, R163, R164, R165, R166, R167, R168, R169, R170, R171, R172, R173, R174, R175, R176, R177, R178, R179, R180, R181, R182, R183, R184, R185, R186, R187, R188, R189, R190, R191, R192, R193, R194, R195, R196, R197, R198, R199, R200, R201, R202, R203, R204, R205, R206, R207, R208, R209, R210, R211, R212, R213, R214, R215, R216, R217, R218, R219, R220, R221, R222, R223, R224, R225, R226, R227, R228, R229, R230, R231, R232, R233, R234, R235, R236, R237, R238, R239, R240, R241, R242, R243, R244, R245, R246, R247, R248, R249, R250, R251, R252, R253, R254, R255, R256, R257, R258, R259, R260, R261, R262, R263, R264, R265, R266, R267, R268, R269, R270, R271, R272, R273, R274, R275, R276, R277, R278, R279, R280, R281, R282, R283, R284, R285, R286, R287, R288, R289, R290, R291, R292, R293, R294, R295, R296, R297, R298, R299, R300, R301, R302, R303, R304, R305, R306, R307, R308, R309, R310, R311, R312, R313, R314, R315, R316, R317, R318, R319, R320, R321, R322, R323, R324, R325, R326, R327, R328, R329, R330, R331, R332, R333, R334, R335, R336, R337, R338, R339, R340, R341, R342, R343, R344, R345, R346, R347, R348, R349, R350, R351, R352, R353, R354, R355, R356, R357, R358, R359, R360, R361, R362, R363, R364, R365, R366, R367, R368, R369, R370, R371, R372, R373, R374, R375, R376, R377, R378, R379, R380, R381, R382, R383, R384, R385, R386, R387, R388, R389, R390, R391, R392, R393, R394, R395, R396, R397, R398, R399, R400, R401, R402, R403, R404, R405, R406, R407, R408, R409, R410, R411, R412, R413, R414, R415, R416, R417, R418, R419, R420, R421, R422, R423, R424, R425, R426, R427, R428, R429, R430, R431, R432, R433, R434, R435, R436, R437, R438, R439, R440, R441, R442, R443, R444, R445, R446, R447, R448, R449, R450, R451, R452, R453, R454, R455, R456, R457, R458, R459, R460, R461, R462, R463, R464, R465, R466, R467, R468, R469, R470, R471, R472, R473, R474, R475, R476, R477, R478, R479, R480, R481, R482, R483, R484, R485, R486, R487, R488, R489, R490, R491, R492, R493, R494, R495, R496, R497, R498, R499, R500, R501, R502, R503, R504, R505, R506, R507, R508, R509, R510, R511, R512, R513, R514, R515, R516, R517, R518, R519, R520, R521, R522, R523, R524, R525, R526, R527, R528, R529, R530, R531, R532, R533, R534, R535, R536, R537, R538, R539, R540, R541, R542, R543, R544, R545, R546, R547, R548, R549, R550, R551, R552, R553, R554, R555, R556, R557, R558, R559, R560, R561, R562, R563, R564, R565, R566, R567, R568, R569, R570, R571, R572, R573, R574, R575, R576, R577, R578, R579, R580, R581, R582, R583, R584, R585, R586, R587, R588, R589, R590, R591, R592, R593, R594, R595, R596, R597, R598, R599, R600, R601, R602, R603, R604, R605, R606, R607, R608, R609, R610, R611, R612, R613, R614, R615, R616, R617, R618, R619, R620, R621, R622, R623, R624, R6

P481A
 PDB1A/62A/83A
 EMX40345901151
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 R. J.

Pb Free
 Soldering

P107

SW108
 SW107
 SW106
 SW105
 SW104
 SW103
 SW102
 SW101

CH+
 CH-
 VOL+
 VOL-
 OK
 MENU
 TV/V

R108
 R107
 R106
 R105
 R104
 R103
 R102
 R101

ZD102
 C102
 P101
 ZD101
 C101

PCB layout diagram for the P101 board. The diagram shows the placement of various components including resistors (R101-R110), capacitors (C101-C103), integrated circuits (IC1, IC2), and a microcontroller (PUB3A/PUB2C). It also includes a circular cutout for a speaker and a rectangular cutout for a battery. A legend indicates 'Pb Free Soldering'.



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